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Surgeries and Cardiovascular System

Impacted Rectal Foreign Body

Comparitive Study of Non-Perforated

Highlights

Assisted Transanal Extraction

Needling of the Surgical Neonate

Discovering Thoughts, Inventing Future

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Laparoscopic-Assisted Transanal Extraction of an Impacted Rectal Foreign Body

By Ahmad Alqattan, Aqeel Jaber, Abdullah Shuaib, Maged Edward,
Ameera Alhassan & Ahmed Taqi

Abstract- A foreign body in the rectum (FBR) is becoming a common presentation in the surgical emergency department. Generally, rectal foreign body removal can be a challenge as regards management due to the wide variety of objects inserted in the rectum. Usually, a rectal foreign body is extracted manually in the emergency department under local anesthesia. In some cases, simple manual extraction of an impacted FBR is unsuccessful. In such cases, general anesthesia with surgical intervention may be required to extract the FBT. We describe the case of a 38-y-old previously healthy male, who presented to the emergency department with rectal bleeding and constant pain in the anal area for approximately three h after inserting a lubricant gel container transanally for autoerotic purposes. Proctoscopy was performed in the emergency department to retrieve the FBR. However, the retrieval attempts were unsuccessful. Laparoscopy-assisted transanal extraction of the object was performed under general anesthesia. The object was pushed (milked) using a laparoscopic bowel clamp down the rectum, and the object was then extracted transanally.

Keywords: rectal foreign body; transanal removal, laparoscopic-assisted.

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Laparoscopic-Assisted Transanal Extraction of an Impacted Rectal Foreign Body

Ahmad Alqattan ^α, Aqeel Jaber ^σ, Abdullah Shuaib ^ρ, Maged Edward ^ω, Ameera Alhassan[¥] & Ahmed Taqi [§]

Abstract- A foreign body in the rectum (FBR) is becoming a common presentation in the surgical emergency department. Generally, rectal foreign body removal can be a challenge as regards management due to the wide variety of objects inserted in the rectum. Usually, a rectal foreign body is extracted manually in the emergency department under local anesthesia. In some cases, simple manual extraction of an impacted FBR is unsuccessful. In such cases, general anesthesia with surgical intervention may be required to extract the FBT. We describe the case of a 38-y-old previously healthy male, who presented to the emergency department with rectal bleeding and constant pain in the anal area for approximately three h after inserting a lubricant gel container transanally for autoerotic purposes. Proctoscopy was performed in the emergency department to retrieve the FBR. However, the retrieval attempts were unsuccessful. Laparoscopy-assisted transanal extraction of the object was performed under general anesthesia. The object was pushed (milked) using a laparoscopic bowel clamp down the rectum, and the object was then extracted transanally. The main pathways of FBR extraction are transanal, endoscopic or surgical. Although multiple guidelines on FBR management have been developed, there are no specific criteria for management.

Keywords: rectal foreign body; transanal removal, laparoscopic-assisted.

I. INTRODUCTION

A Foreign body in the rectum (FBR) is becoming a common presentation in the surgical emergency department. Usually, FBR extraction is done manually in the emergency department under local anesthesia [1]. In some cases, simple manual extraction of an impacted FBR is unsuccessful. In such cases, general anesthesia with surgical intervention may be required for extraction [1]. An FBR may be the result of erotic behaviour, sexual assault, accidental insertion, illegal drug transportation, or self-evacuation of a stool in cases of constipation [1, 2]. The pathways of extraction are as follows: transanal, endoscopic and operative. Various methods of extraction have been described in the literature. These include uterine clamps [3, 4], laparoscopic-assisted extraction [5], transanal use of a SILS™ port [1], a modified TAMIS technique with standard instruments and trocars [6] or transanal extraction using rigid endoscopy and biopsy forceps [2]. In this case report, laparoscopic-assisted transanal extraction of an impacted FBR is described.

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II. CASE

A 38-y-old previously healthy male presented to the emergency department with rectal bleeding and constant pain in the anal area for approximately three hours. The patient reported using a lubricant gel container for autoerotic purposes. On examination, the patient's abdomen was soft and lax, with no rebound tenderness. A digital rectal examination revealed two superficial lacerations at the 6 and 9 o'clock position at the anal verge, with minimal bleeding. The foreign body was not palpated in the examination. An abdominal X-ray showed the gel container in the rectum (Fig. 1). Laboratory investigations were unremarkable. Proctoscopy was performed in the emergency department to retrieve the foreign body from the rectum. The retrieval attempts were unsuccessful. Therefore, the patient was admitted to the surgical ward to extract the foreign body transanally under general anaesthesia in the operating room.

III. TECHNIQUE

On initial inspection and palpation, the object was 10–12 cm from the anal verge. The patient was placed in the lithotomy position after anaesthesia induction and endotracheal intubation. Multiple transanal attempts were unsuccessful in retrieving the object using a uterine delivery forceps, Kocher forceps, and laparoscopic clamps because the object slipped from the transanal instrument and migrated further up the rectum. Rigid sigmoidoscopy was performed and identified the object 15–17 cm from the anal verge. All attempts at transanal extraction were unsuccessful. Thus, a laparoscopic abdominal intervention to assist in foreign body extraction was performed. A single 10mm trocar was placed supra-umbilically via open technique. An additional two 5mm trocars were placed in the right side of the abdomen to facilitate mobilization or 'milking' of the object through the rectum. The object was pushed (milked) using a laparoscopic bowel clamp (Karl Storz, Germany) down the rectum, and the object was extracted through the transanal pathway (Fig. 2). A small serosa tear in the anterior wall of the rectum that was laparoscopically repaired with interrupted sutures. The post-operative period of the patient was unremarkable. He tolerated oral intake on the second post-operative day and was discharged from the surgical ward on the third post-operative day.

IV. DISCUSSION

Generally, the removal of rectal foreign bodies can be a challenge as regards management due to the wide variety of objects inserted in the rectum. These objects may have various consequences, from simple local trauma and soft tissue damage to complete obstruction and perforation [7]. In some cases, simple transanal extraction may be sufficient, whereas a surgical intervention may be required in other cases [7]. In patients without perforation, simple transanal extraction can be attempted as a first-line procedure, with a success rate of 75% [7]. A detailed history should be obtained from the patient about the shape, dimensions and content of the inserted foreign object to allow the surgeon to plan a strategy for extraction. A physical examination should be undertaken to assess the general condition of the patient. Imaging investigations, such as an abdominal X-ray or computed tomography may assist in planning the extraction strategy [7]. Evidence of peritonitis or perforation in clinical and radiological investigations of the patient with the FBR will direct the treatment plan towards surgical intervention, such as diagnostic laparoscopy or explorative laparotomy [8]. Multiple guidelines and non-specific criteria for FBR extractions have been developed [2, 8, 9]. Extraction procedures and methods described in the medical literature include uterine clamps [3,4], laparoscopic-assisted transanal extraction [5], transanal use of an SILS™ port [1], a modified TAMIS technique with standard instruments and trocars [6] or transanal extraction using rigid endoscopy and biopsy forceps [2]. In the present case, laparoscopy-assisted transanal extraction of the object was undertaken, and this removed the need to open the bowel intra-abdominally. Berghoff [10] reported a comparable procedure in 2005, with no complications.

V. CONCLUSION

The presentation of patients with rectal foreign bodies is relatively common in the emergency department. However, FBR management can pose a challenge to emergency physicians or surgeons. A patient history, physical examination and imaging investigations are essential to planning the extraction strategy. The main pathways of extraction are transanal, endoscopic or surgical. Although multiple guidelines on FBR management have been developed, there are no specific criteria for management. The dimensions shape and content of the object, in addition to the patient's general condition and stability, should determine the extraction strategy. Laparoscopy can help with 'milking' an impacted object in the rectum and extraction through the transanal pathway.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Bak Y, Merriam M, Neff M, Berg D A. A novel approach to rectal foreign body extraction. *JSLs* 2013; 17:342–345. DOI: 10.4293/108680813X13654754534233.
2. Cologne K G, Ault G T. Rectal foreign bodies: What is the current standard? *Clin Colon Rectal Surg* 2012; 25:214–218. DOI: <http://dx.doi.org/10.1055/s-0032-1329392>; ISSN 1531-0043.
3. Levin S E, Cooperman H, Freilich M, Lomas M. The use of a curved uterine vulsellum for removal of rectal foreign bodies: Report of a case. *Dis Colon Rectum* 1977; 20:532–533.
4. Peet T N. Removal of impacted rectal foreign body with obstetric forceps. *BMJ* 1976; 1:500–501.
5. Durai R, Biradhar D, Ng P C. Two port laparoscopic-assisted removal of a migrating rectal foreign body. *Tech Coloproctol* 2010; 14:263–264.
6. Cawich S O, Mohammed F, Spence R, Albert M, and Naraynsingh V. Case Report: Colonic foreign body retrieval using a modified TAMIS technique with standard instruments and trocars. *Case Rep Emerg Med* Volume 2015, Article ID 815616, 4 pages. <http://dx.doi.org/10.1155/2015/815616>.
7. Mikamia H, Ishimuraa N, Okaa A, Moriyamab I, Yukia T, Kawashimaa d Kousaku, Satoc S, Ishiharaa S, Kinoshitaa Y. Successful transanal removal of a rectal foreign body by abdominal compression under endoscopic and X-ray fluoroscopic observation. A case report. *Case Rep Gastroenterol* 2016; 10:646–652. DOI: 10.1159/000452210.
8. Koornstra J J, Weersma R K. Management of rectal foreign bodies: Description of a new technique and clinical practice guidelines. *World J Gastroenterol* 2008; 14:4403–4406.
9. Coskun A, Erkan N, Yakan S, Yildirim M, Cengiz F. Management of rectal foreign bodies. *World J Emerg Surg* 2013; 8:11. <http://www.wjes.org/content/8/1/11>.
10. Berghoff K, Franklin M. Laparoscopic-assisted rectal foreign body removal: report of a case. *Dis Colon Rectum* 2005; 48:1975. <https://doi.org/10.1007/s10350-005-0117-6>.

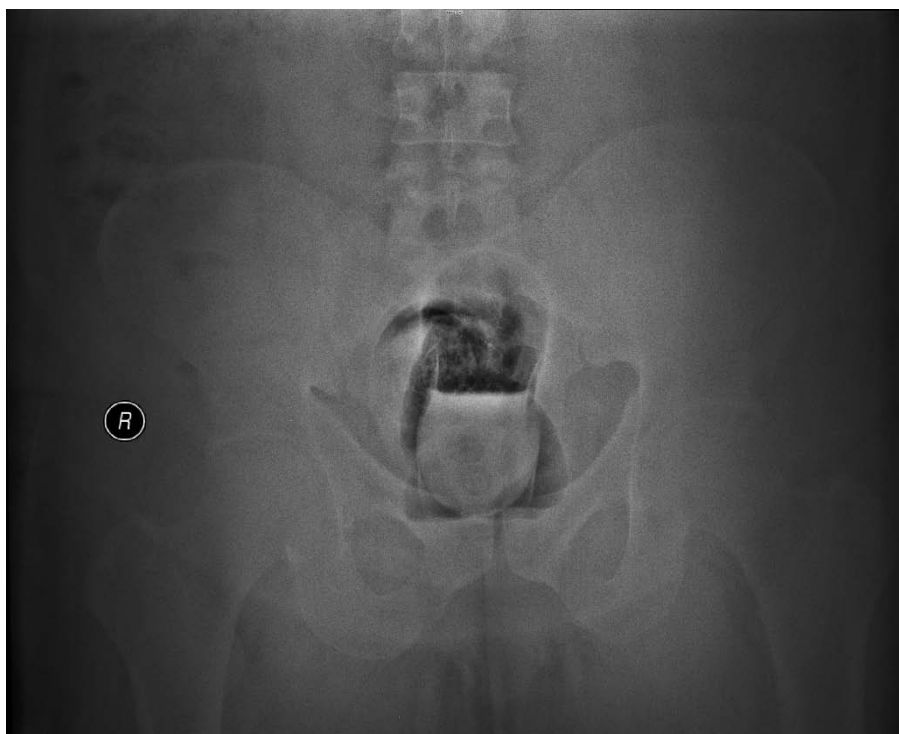


Figure 1: Abdominal x ray revealing FBR

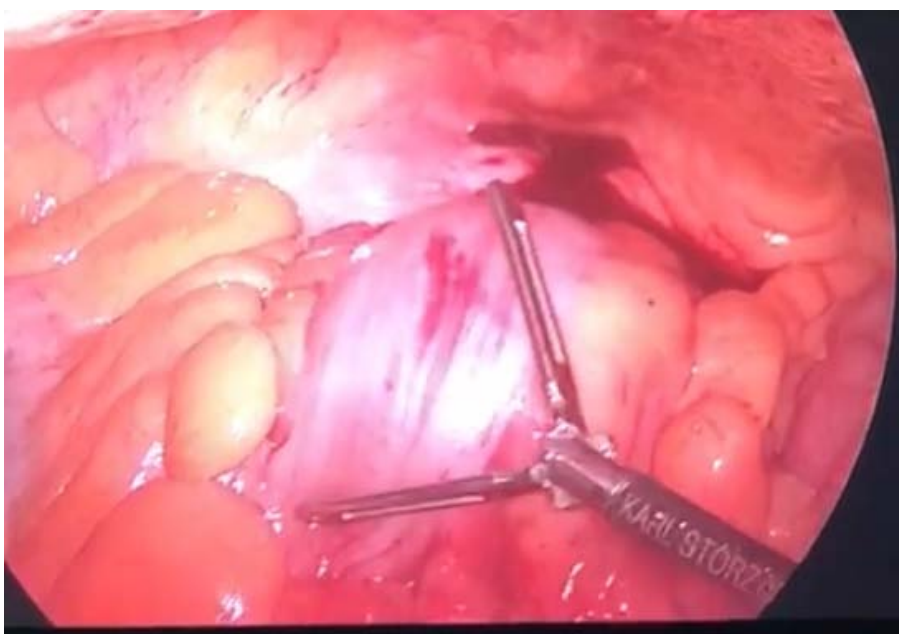


Figure 2: Laparoscopic view of the impacted foreign body in rectum

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A Comparative Study of Non-Perforated and Perforated Appendicitis

By Akhil Murthy

Introduction: Acute appendicitis is the commonest surgical emergency. The lifetime incidence of appendicitis is 6-7% and is more in males than in females with maximum incidence in 10-14 year male and 15-19 year female. 1-2 Appendicitis presents as right iliac fossa pain, nausea, vomiting, and decreased appetite. But only 50% of patients present with these classical symptoms. Hence there is delay in diagnosis.

The pathophysiology leading to appendicitis is not clear, it is likely that luminal obstruction by external (lymphoid hyperplasia) or internal (inspissated fecal material, appendicoliths) compression plays a key pathogenic role. The luminal obstruction leads to increased mucus production, bacterial overgrowth, and stasis, which increases appendiceal wall tension.

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A Comparative Study of Non-Perforated and Perforated Appendicitis

Akhil Murthy

I. INTRODUCTION

Acute appendicitis is the commonest surgical emergency. The lifetime incidence of appendicitis is 6-7% and is more in males than in females with maximum incidence in 10-14 year male and 15-19 year female. 1-2 Appendicitis presents as right iliac fossa pain, nausea, vomiting, and decreased appetite. But only 50% of patients present with these classical symptoms. Hence there is delay in diagnosis.

The pathophysiology leading to appendicitis is not clear, it is likely that luminal obstruction by external (lymphoid hyperplasia) or internal (inspissated fecal material, appendicoliths) compression plays a key pathogenic role. The luminal obstruction leads to increased mucus production, bacterial overgrowth, and stasis, which increases appendiceal wall tension. Consequently, blood and lymph flow is diminished, and necrosis and perforation follow. As these events occur over time, it is conceivable that early surgical intervention prevents progression of the disease. Indeed, this notion provided the basis for the historical concept of early operation for patients with acute appendicitis.

Complications of acute appendicitis include perforation, gangrene, appendicular lump, appendicular abscess, peritonitis and sepsis.

Incidence of complicated appendicitis including perforation is about 28-29 % 3. The mortality rate of non-perforated appendicitis is less than 1 percent. Perforated appendicitis is associated with a higher mortality rate as high as five percent and may be particularly more in elderly. 4

It is believed that the perforation of appendicitis is part of pathological changes in appendix and is related to duration of inflammation from time of onset. Longer the duration of symptoms, higher the rate of perforation. Usually the delay occurs at patient ends i.e. from onset of symptoms to reporting at hospital and these results in perforation. Delay in hospital after admission is minimal and is not responsible for perforation.

The goal of surgery in appendicitis is to operate before the appendix perforates and to reduce the negative appendectomy. Negative appendectomy is surgically removed appendix which is pathologically normal. It has been in between 15 and 25 % 5 but even

higher in women where making a diagnosis is even more difficult. The diagnosis of appendicitis should be early and accurate to reduce the negative appendectomy.

The Fitz hypothesis 6, "Treatment of acute appendicitis is appendectomy" is being challenged. The new hypothesis stating that perforated appendicitis is different entity to acute appendicitis and is age, sex, co-morbid related and depends upon virulence of bacteria. The perforation occurs as per above pathology and not due to delay of presentation of symptoms. 6-7

There is another school of thought which advocates antibiotics as the sole treatment modality for acute appendicitis. It also challenges the concept of interval appendectomy. The incidence of recurrence of acute appendicitis after non-operative management is only 13 % which is slightly higher than incidence of acute appendicitis in general population. 8

It is being believed that acute appendicitis and perforated appendicitis are two different pathologies. They need to be differentiated at the time of admission with precise clinical examination, various inflammatory markers and the use of modern radiological investigation of USG and CT scan. 9-10

Hence there is need to have prospective study to analyze the two disease entities i.e. Non- perforated appendicitis and perforated appendicitis.

II. AIMS AND OBJECTIVES

a) Aim

Aim of the study was to carry out a comparative Study of clinico-pathological profile of patients undergoing emergency appendectomies and to determine the factors influencing the risk of perforated appendicitis.

b) Objective

1. To analyze the profile of the patient, age, sex of non-perforated and perforated appendicitis.
2. To compare incidence between non- perforated and perforated appendicitis since time of onset.
3. To evaluate the role of clinical diagnosis using RIPASA SCORE between non-perforated and perforated appendicitis.
4. To evaluate the relation of inflammatory markers like leukocytosis, and serum bilirubin in diagnosis of non-perforated and perforated appendicitis.

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5. To evaluate the role of Ultrasound imaging and CT scan (when performed) in non-perforated and perforated appendicitis.
6. To analyze the outcome of morbidity and mortality between non-perforated and perforated appendicitis.
7. To analyze the various bacteria's associated in non-perforated and perforated appendicitis.

III. MATERIALS AND METHODS

a) Materials

- i. *Type of study*: Prospective & Comparative study.
- ii. *Place of study*: Dr. D Y Patil Medical College and Hospital and Research Centre, Pimpri, Pune-18.
- iii. *Period of study*: July 2015 To September 2017.
- iv. *Sample Size*: Total 100 cases.
- v. *Inclusion criteria*

All patients operated for acute appendicitis by open appendectomy.

vi. Exclusion criteria

- Patients on conservative management.
- Cases of appendicular abscess, lump.

Institutional ethical committee clearance was taken prior to the study.

b) Methods

Informed and written consent of all the patients was taken before including them in the study (Appendix I)

Consent for surgery (Appendix II)

Plan of study:

1. All patients with pain in RIF were admitted.
2. History and physical examination were done and findings recorded in proforma attached (Appendix III)



Gangrenous appendicitis with appendicoliths



Gangrenous appendicitis



Cut open specimen of appendix with appendicolith

3. The secretions of appendicular lumen was sent for bacteriological examination.
4. Histopathology were classified as follows:
 - a) Normal appendix
 - b) Acute appendicitis
 - c) Gangrenous appendicitis
 - d) Perforated appendicitis
5. Patients were treated with IV fluids, antibiotics and analgesics post-operatively. Oral feeds were started as soon as bowel sounds were heard. Non-perforated appendicitis were given Inj Cefotaxime 1gm IV 12 hrly for 3 days. In perforated appendicitis patient were given Inj Taxim 1gm IV 12hrly and Inj Metro 500mg IV 8hrly for 5-7days.
6. Data was collected and statistically analyzed.

Statistical Analysis:

Data was summed up on a spreadsheet and analysis was done using the ordinal logistic regression.

The ordinal logistic regression is a proportional odds model that determines the cumulative odds of a less favorable response compared with a more favorable response.

IV. OBSERVATIONS AND RESULTS

Table 1: Age group

		Appendicitis		Total
		Non-Perforated	Perforated	
Age	0 – 15	3	6	9
	15 – 30	41	10	51
	30 – 45	19	9	28
	45 – 60	6	1	7
	More than 60	2	3	5
Total		71	29	100

$p = 0.021$. As P-value less than α we may reject H_0 . Hence, there is significant association between Age group and Appendicitis.

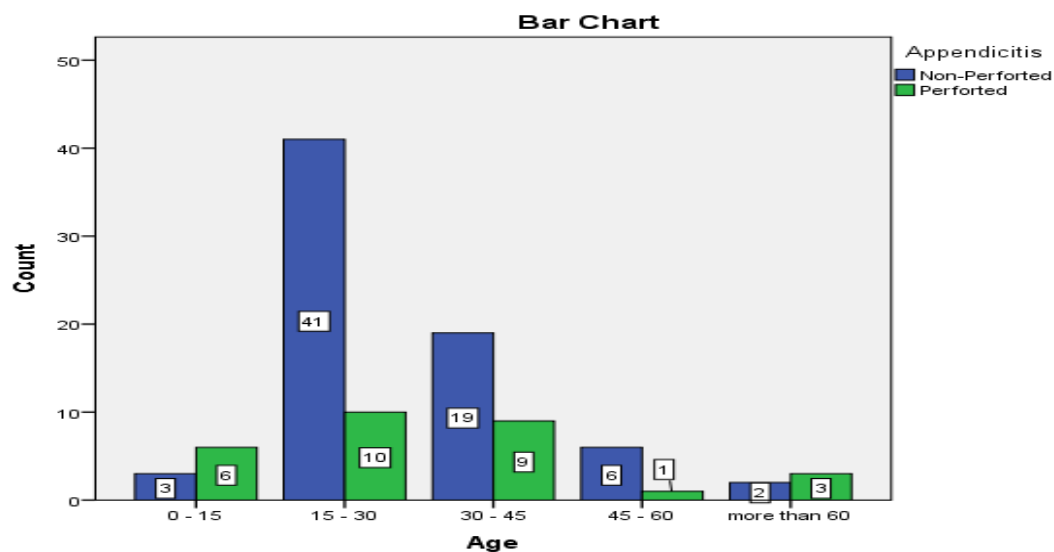
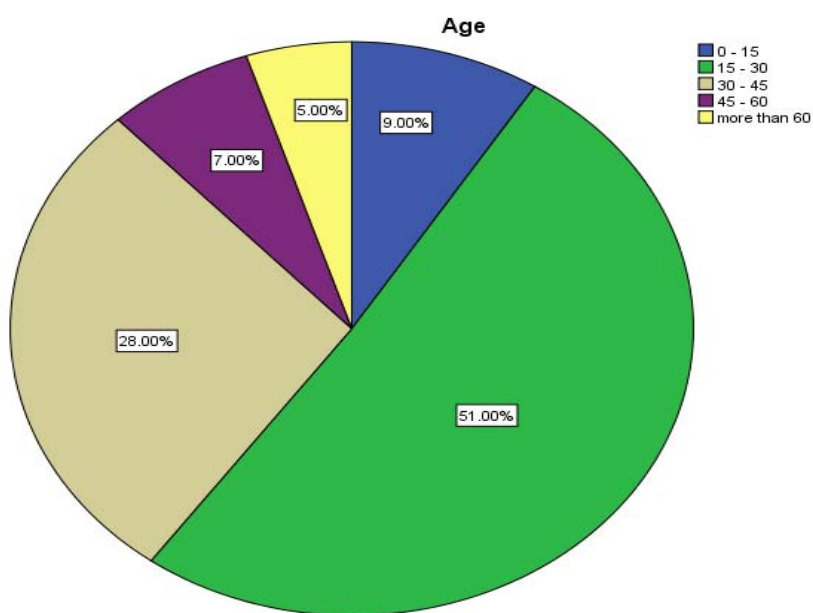


Figure 1



Pie diagram 1

Graph reveals that, in the age group 0 -15 are 3% of appendectomies were non-perforated and 6% appendectomies were perforated. In the age group 15 – 30, 41% appendectomies were non-perforated and 10 % appendectomies were perforated. In the age group 30 – 45, 19% were non-perforated and 9% were

perforated. In the age group 45 – 60, 6% appendectomies were non-perforated and 1% appendectomies were perforated. In the age group more than 60 yrs 2% were non-perforated and 3% appendectomies were perforated.

Table 2: Gender Count

		Appendicitis		Total
		Non-Perforated	Perforated	
Gender	Female	34	13	47
	Male	37	16	53
Total		71	29	100

$p = 0.781$. There is no significant association.

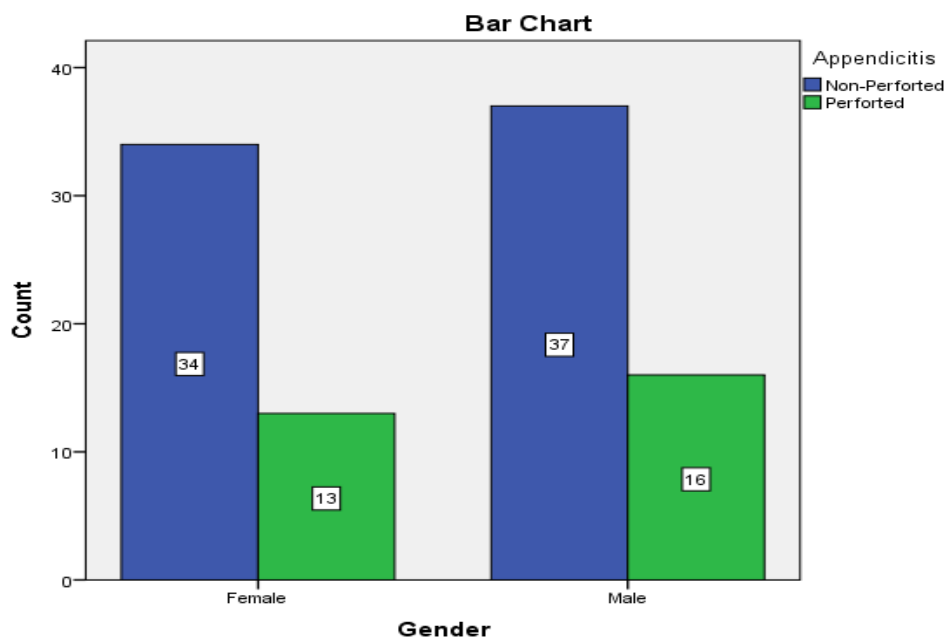
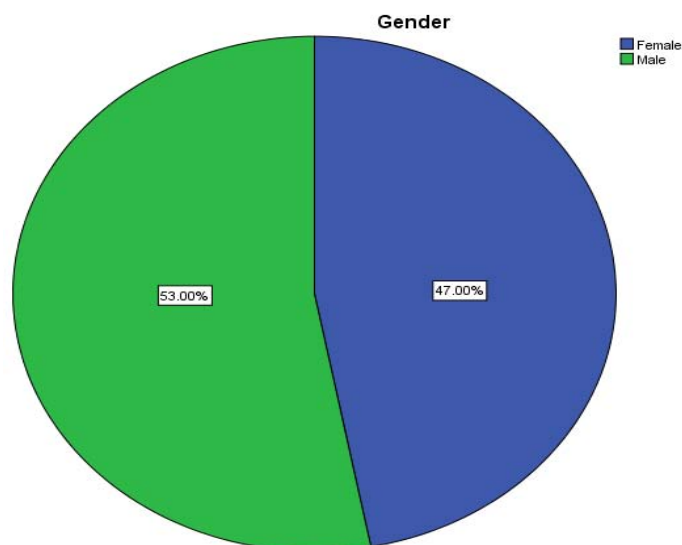


Figure 2



Pie diagram 2

Graph reveals that, in females 34% appendectomies were non-perforated and 16% appendectomies were non-perforated and 13% appendectomies were perforated. In males 37% appendectomies were perforated.

Table 3: Duration

		Appendicitis		Total
		Non-Perforated	Perforated	
Duration	<48hours	44	18	62
	>48hours	27	11	38
Total		71	29	100

p= 0.993. There was no significant association.

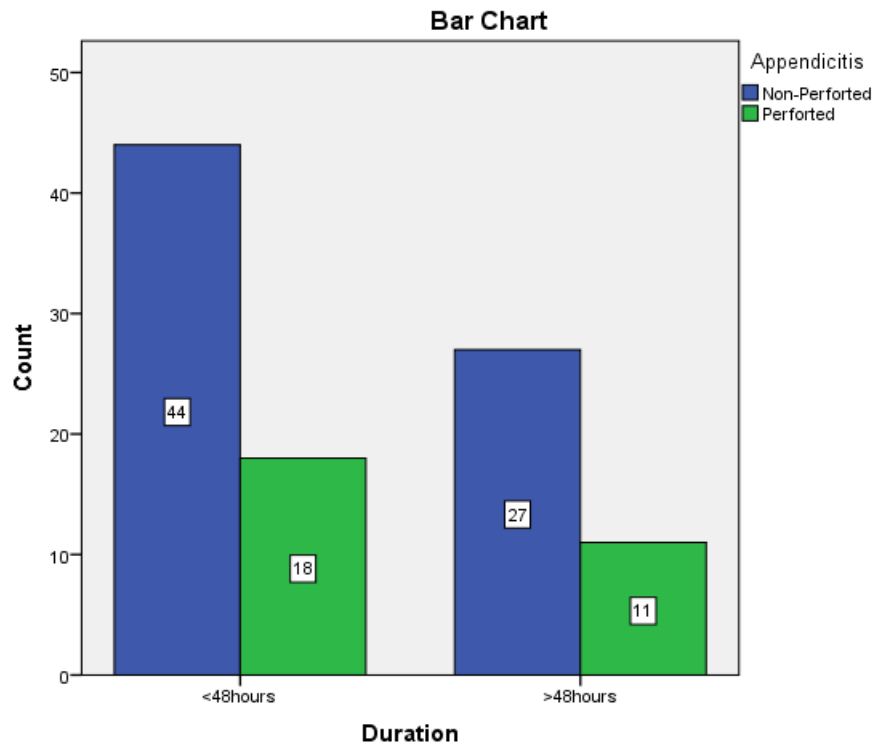


Figure 3

Graph reveals that, 44% appendectomies were non-perforated and 18% appendectomies were perforated when diagnosed within 48 hours of onset of symptoms. In the duration greater than 48 hours 27% appendectomies were non-perforated and 11% appendectomies were perforated.

Table 4: RIPASA Score

RIPASA * Appendicitis Cross tabulation				
		Appendicitis		Total
		Non-Perforated	Perforated	
RIPASA	5 - 7.5	23	2	25
	7.5 -12	48	27	75
Total		71	29	100

p= 0.008. There was a significant association in diagnosis of appendicitis using RIPASA score.

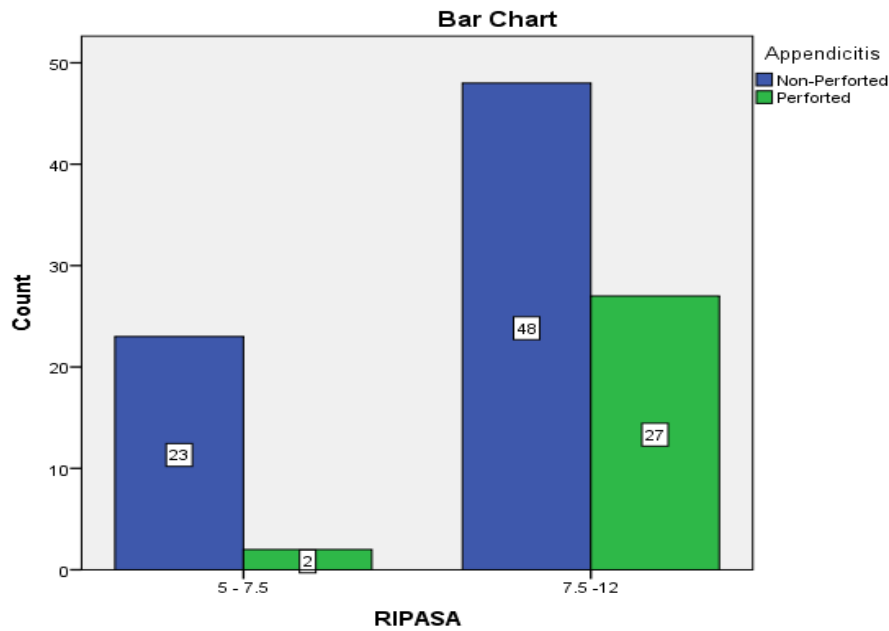


Figure 4

Graph reveals that with a score in the range of 5 - 7.5, 23% appendectomies were non-perforated and 2% appendectomies performed were perforated. In the range 7.5 - 12, 48% appendectomies were non-perforated and 27% appendectomies were perforated.

Table 5: Leukocytosis

		Appendicitis		Total
		Non-Perforated	Perforated	
TLC	5000 – 10000	20	2	22
	10000 – 15000	41	9	50
	15000 – 20000	4	6	10
	20000 – 25000	6	12	18
Total		71	29	100

$p = 0.000$. There was a significant association in diagnosing appendicitis based on TLC counts.

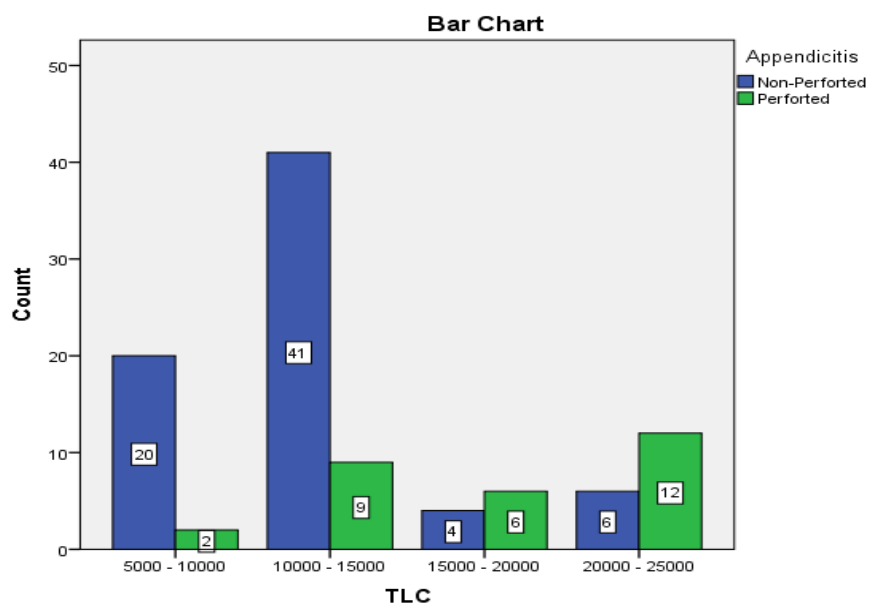
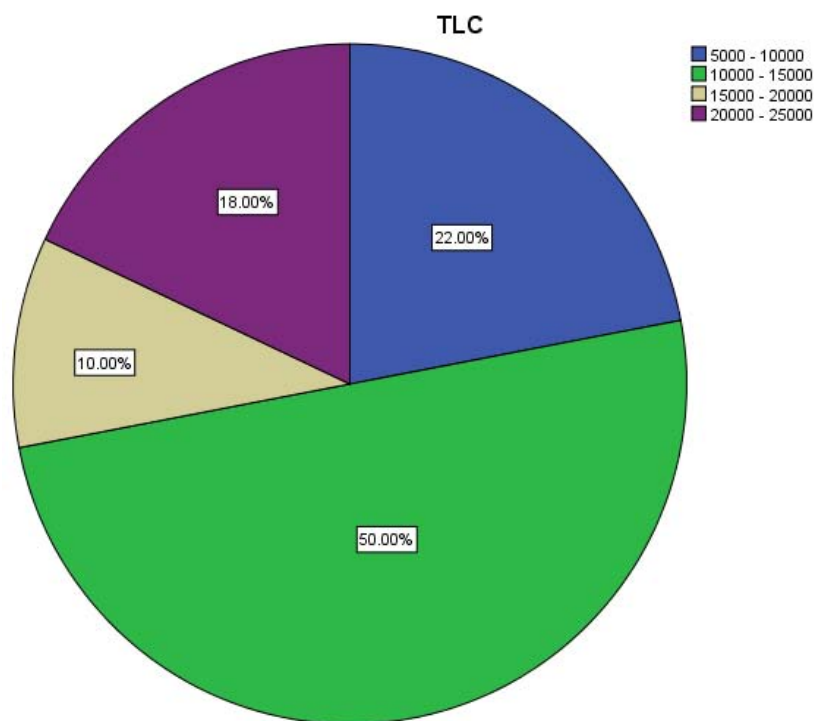


Figure 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5000 - 10000	22	22.0	22.0	22.0
	10000 - 15000	50	50.0	50.0	72.0
	15000 - 20000	10	10.0	10.0	82.0
	20000 - 25000	18	18.0	18.0	100.0
	Total	100	100.0	100.0	



Pie diagram 3

Graph reveals that, in the range of 5000 - 10000 20% appendectomies were non-perforated and 2% appendectomies were perforated. In the range of 10000 - 15000 41% appendectomies were non-perforated and 9% appendectomies were perforated.

In the range of 15000 - 20000 4% appendectomies were non-perforated and 6% appendectomies were perforated. In the range of 20000 - 25000 6% appendectomies were non-perforated and 12% appendectomies were perforated.

Table 6: Co-Relation of Total Leucocyte Count with HPE

TLC	HPE		TOTAL
	Non-Perforated	Perforated	
TLC-RAISED	51	27	78
TLC-NORMAL	20	2	22
TOTAL	71	29	100

$p=0.020$. There was a significant association of TLC in relation to diagnosing appendicitis.

CO-RELATION OF TOTAL LEUCOCYTE COUNT WITH HPE

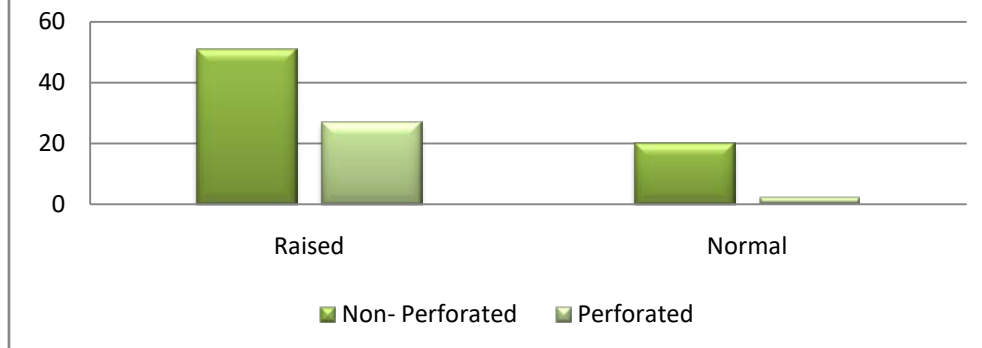


Figure 6

Graph shows that a total of 51 cases had raised TLC in case of non-perforated appendicitis and 27 cases had raised TLC in case of perforated appendicitis.

Table 7: Serum bilirubin

		Appendicitis		Total
		Non-Perforated	Perforated	
LFTS	0.2 - 1	68	25	93
	More than 1	3	4	7
Total		71	29	100

$p=0.089$. There was no significant association between LFTs and diagnosis of appendicitis.

Bar Chart

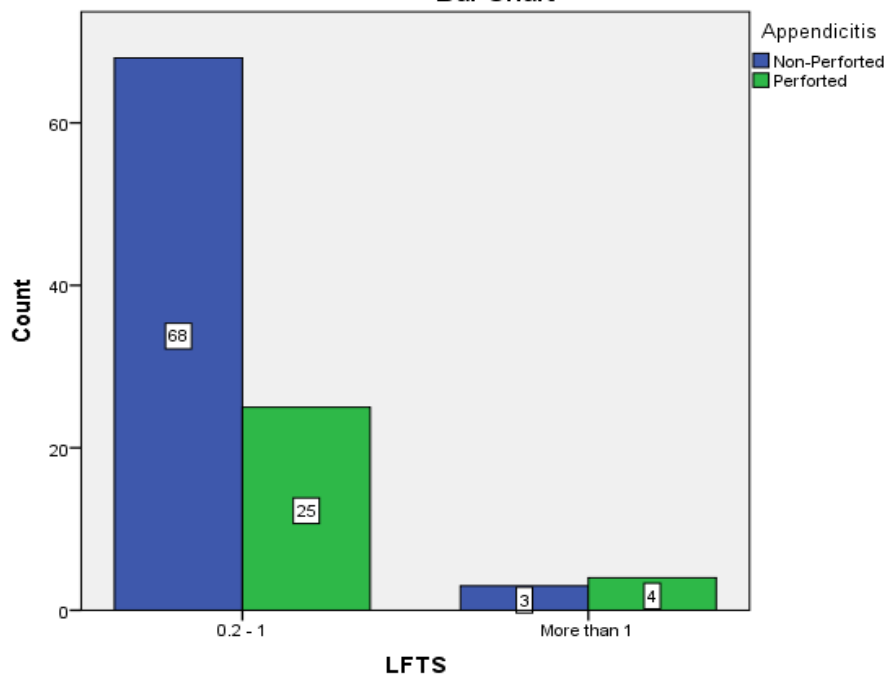


Figure 7

Graph reveals that, in the range 0.2 - 1 68% appendectomies were non-perforated and 25% appendectomies were perforated. In the range more than 1 3% appendectomies were non-perforated and 4% appendectomies were perforated.

Table 8: Post-operative mortality and morbidity

Days/ Complication	Day 1		Day 3		Day 5	
	Non-Perforated	Perforated	Non-Perforated	Perforated	Non-Perforated	Perforated
Pain (VAS)	71	29	24	16	Resolved	Resolved
Nausea	8	12	Resolved	5	Resolved	Resolved
Vomiting	4	8	Resolved	Resolved	Resolved	Resolved
Seroma	Not elicited	Not elicited	9	12	5	16
Suture Site Infection	Not elicited	Not elicited	Nil	8	Nil	5

In our study there was no difference noted in the effect of pain in both the groups of patients on day 1. Pain was more evident in patients operated with perforated appendicitis on day 3 whereas decreased in case of non-perforated appendicitis.

Most common morbidity was suture site infection and seroma which was more common in case of perforated appendicitis.

There was no mortality noted in our study.

Table 9: USG findings

USG finding	No. of cases	Percentage (n=100)
Diameter > 6mm	67	67
Non compressible	41	41
Wall layer oedema	12	12
Target appearance	63	63
Appendicolith	30	30

The above table shows the USG findings in all patients who underwent USG. The majority 67 cases had diameter > 6 mm of appendix, 63 cases had target appearance of appendix and 30 cases had

appendicolith on USG. 41 cases had non-compressibility. Total 90 cases were diagnosed on the basis of USG were taken for surgery. 10 cases were doubtful of appendicitis so, subjected for CT scan.

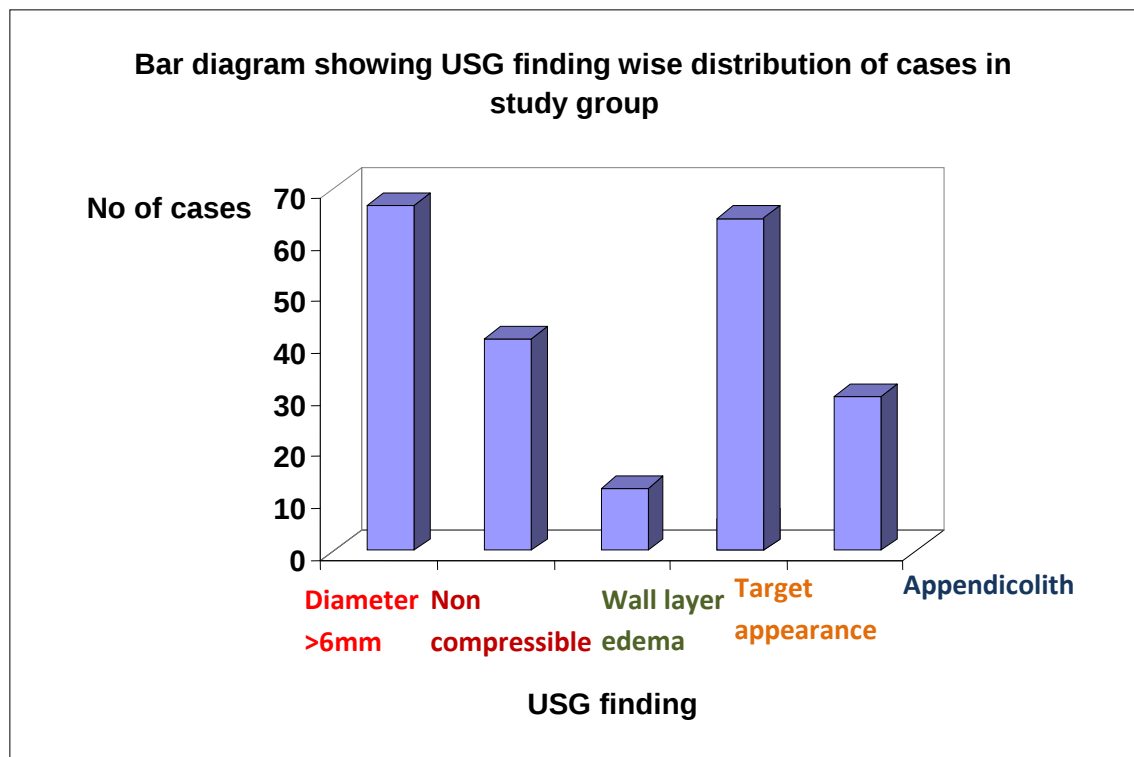
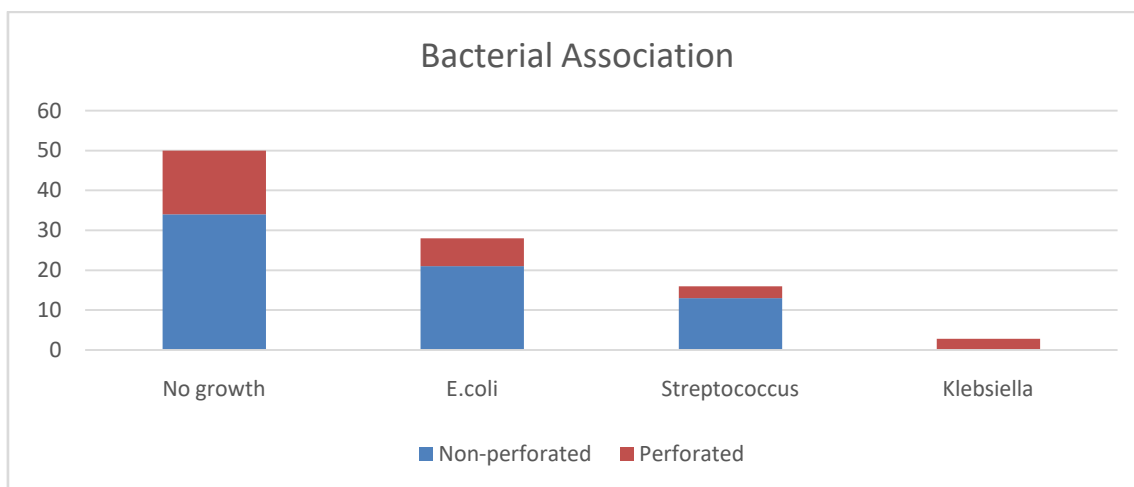
**Figure 8**

Table 10: Bacterial Association

Bacteria	Non-Perforated	Perforated	Total
No growth	34	16	50
E. coli	21	7	28
Streptococcus	13	3	16
Klebseilla	-	3	3
Total	71	29	100



$p = 0.035$. There is a significant association of bacteria causing appendicitis.

Figure 9

Graph showed that there was no growth of any bacteria in 34 patients of non-perforated appendicitis and 16 patients of perforated appendicitis. The commonest bacteria causing appendicitis was E. coli followed by streptococcus and klebsiella.

Table 11: Operative procedure

Operative procedure	Non-perforated	Perforated	Total
Open Appendectomy	71	25	96
Right Hemicolectomy	0	2	2
Open Appendectomy with purse string sutures	0	2	2
Total	71	29	100

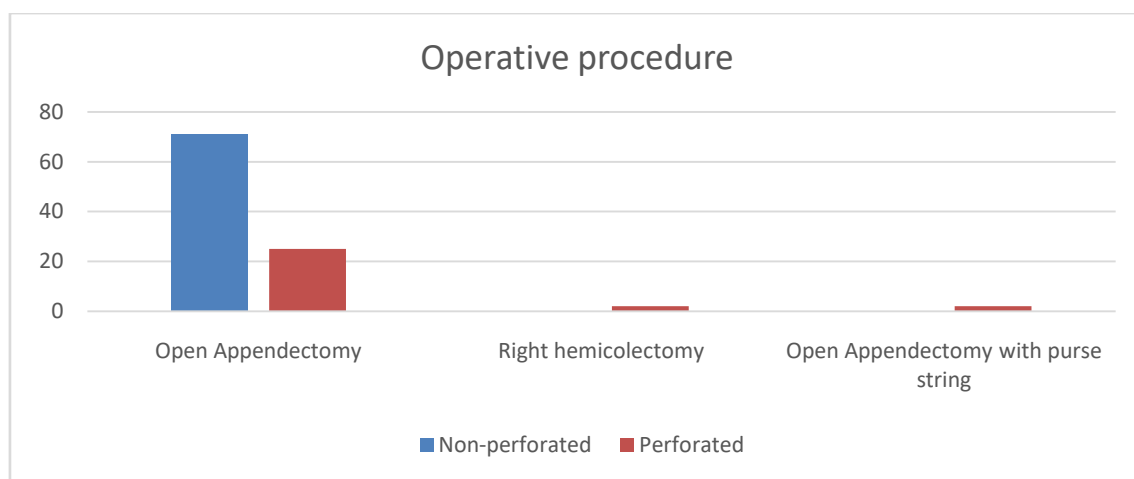


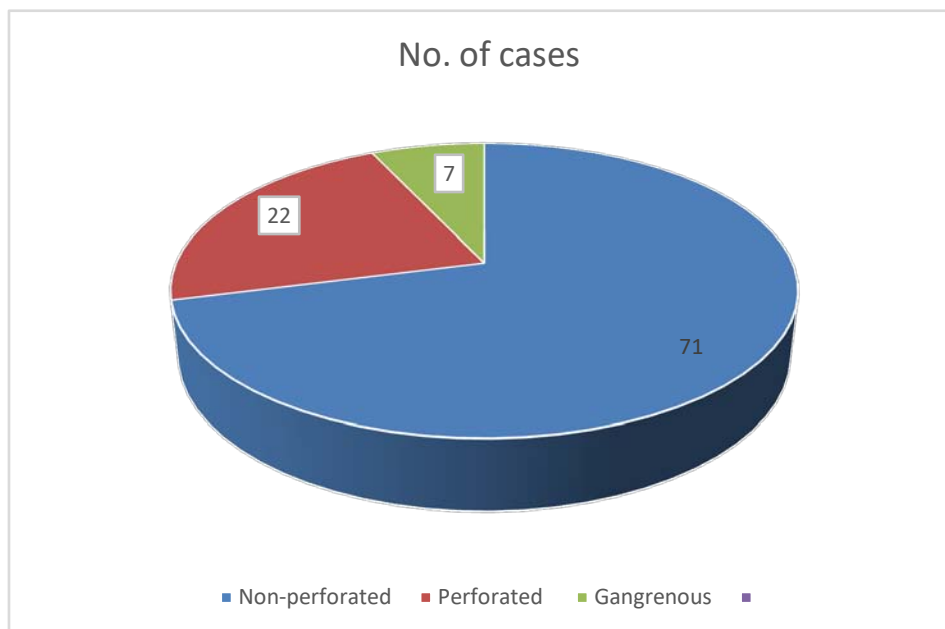
Figure 10

All patients underwent emergency open appendectomy. 2 patients of perforated appendicitis required conversion of surgery to right hemicolectomy due to caecal perforation. 2 patients could be managed with purse-string sutures.

Table 12: Histology

HPE	No. of cases	Percentage
Acute appendicitis	71	71
Perforated appendicitis	22	22
Gangrenous appendicitis	7	7
Total	100	100

Among hundred cases, 71 cases had acute appendicitis, 22 cases had perforated appendix and 7 had gangrenous appendicitis. There were no cases with normal appendix.



Pie diagram 4

Table 13: Association between RIPASA score and HPE in cases group

RIPASA score	HPE		Total
	Non-Perforated	Perforated	
≥ 12	5	8	13
< 12	66	21	87
Total	71	29	100

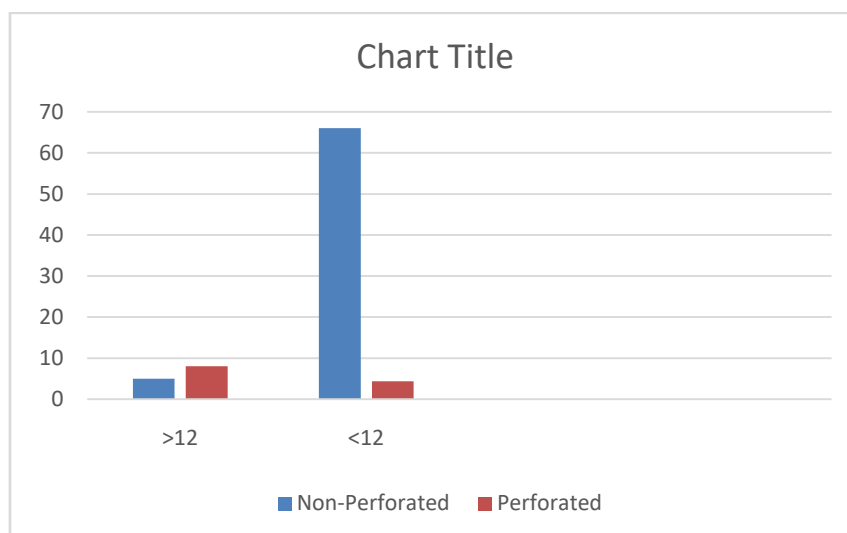


Figure 12

Table 14: Use of Modalities

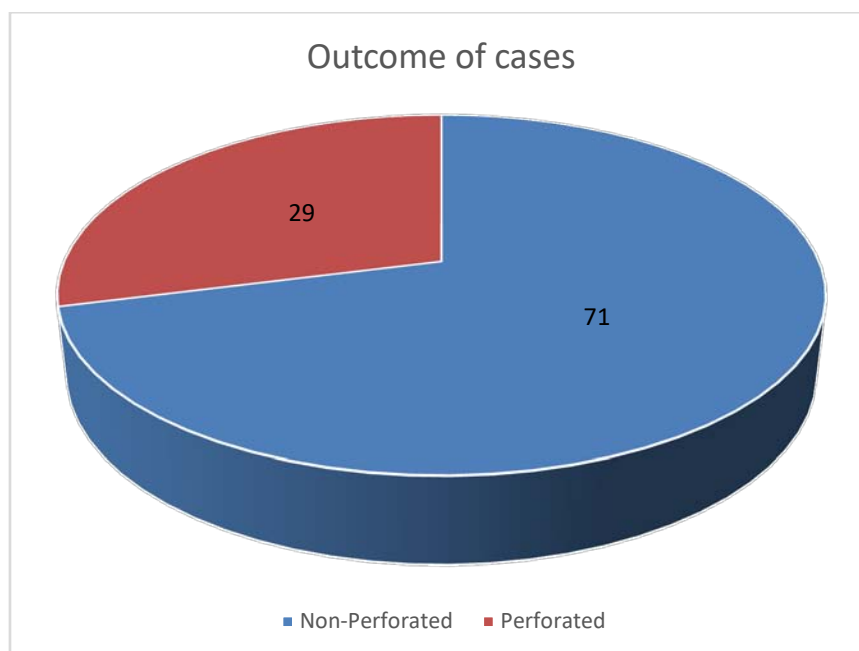
Modality	Cases done	No. of cases positive
RIPASA score 7.5>12	75	75
USG	100	90
CT scan	10	10

USG was done in all cases, out of which 90 cases were diagnosed positive for diagnosis of acute appendicitis i.e. 90%. RIPASA score was used in 75 cases where the score was 7.5-12 and it was 100%

accurate in diagnosing acute appendicitis but with increase in complications. CT scan was done in 10 cases in which the diagnosis was confirmed.

Table 15: Outcome of cases in study group

	No. of cases	Percentage
Non-perforated appendicitis	71	71
Perforated appendicitis	29	29
Total	100	100



Pie diagram 5

71 cases had non-perforated appendicitis based on HPE and 29 cases had perforated appendicitis.

V. DISCUSSION

The present study was carried out to compare the clinico-pathological profile of patients undergoing emergency appendectomies and factors influencing the risk of perforated appendicitis.

Total of 100 cases were included in the study, with 71 patients being diagnosed as non-perforated appendicitis and 29 patients with perforated appendicitis of which 47 were females and 53 were male.

Age wise distribution among study group showed 51 cases within the age group of 15 to 30 yrs followed by 28 cases in the age group of 30 to 45 yrs.

nine cases were in age group of 0-15 yrs. With advancing age, the number of cases of appendicitis encountered in our study decreased, with only 12 cases in age group of 45 yrs and above. Thus, 88% of the patients were below the age of 40 years and 12% were above the age of 45 years. The mean age for non-perforated appendicitis was 28.92 ± 11.40 and that for perforated appendicitis was 28.65 ± 15.64 .

Hartwig et.al⁵³ conducted a similar study on incidence of non-perforated and perforated appendicitis in relation to age and sex specificity. The results were similar to our study group with median age being 22 years. Most of the patients were adolescents and young adults.

The incidence of non-perforated appendicitis varied among the age groups, occurring most

commonly in patients between 13 to 40 years. In contrast perforated appendicitis occurred with a similar incidence in all age group, irrespective of gender. This study concluded that overall perforation rate was 19%, being significantly ($p < 0.0001$) higher in elderly patients and small children. There were no differences between genders in various age groups.^{32, 33}

Our study had no difference in the male to female ratio as 59 % were males and 49 % were females.

A study conducted by Hasan Erdem et al. (2013) which assessed patients with suspected acute appendicitis also bore similar results. One hundred and thirteen patients with suspected acute appendicitis were included in the study. Of the 113 patients the mean age was 30.2 ± 10.1 (range 18-67) years.²⁹ His study had 62 male patients and 51 female patients.

The study by Marwah Karan et al. showed similar findings; out of 96 cases with Right iliac fossa pain, 71 were males and 25 were females.⁵⁴

In our study 44% appendectomies were non-perforated and 18% appendectomies were perforated when diagnosed within 48 hours of onset of symptoms. In the duration greater than 48 hours 27% appendectomies were non-perforated and 11% appendectomies were perforated (0.993). There was no significant association between duration of symptoms and diagnosis of appendicitis.

A similar study was conducted by Frederick Thurston Drake et. al.⁵⁵ who concluded that there was no association between perforation and in-hospital time prior to surgery among adults treated with appendectomy. He also stated that perforation is most often a pre-hospital occurrence and/or not strictly time dependent phenomenon.

Dominic Papandria et. Al.³⁴ performed a study on 683 patients from 1988-2008 and concluded that a delay in appendectomy is associated with increased perforation rates for children and adults. He concluded that the perforation rate was 28.8% on day of admission, this increased to 33.3% for surgeries done on day 2 and 78.8% for day 8 ($p < 0.001$). Odds of perforation increased from 1.20 for adults and 1.08 for children on day 2 to 4.76 for adults and 15.42 in children for patients admitted in hospital till 8th day ($p < 0.001$).

Tanveer Ahmed et.al.⁵⁶ concluded in his study that a mean delay from onset of symptoms to surgery for perforated appendicitis is 4.2 days. He also said that patient with diabetes have more incidence of perforation of appendix.

Michael F. Ditillo et.al.³⁵ concluded that when the interval was < 12 hours, the risk of developing acute appendicitis was 94% and that of perforation was 0-3%. These values changed to 60% for acute appendicitis and 30% for perforation when duration was between 48 to 71 hours. The odds for progressive pathology was 13

times higher for interval > 71 hours compared with total interval < 12 hours.

In our study, RIPASA score in the range of 5 - 7.5, 23% appendectomies were non-perforated and 2% appendectomies were perforated. In the range 7.5 - 12, 48% appendectomies were non-perforated and 27% appendectomies were perforated.

Similar findings were also observed in a study conducted by Wen Liu, Jin Wei Qiang and Rong Xun Sun (2014), who compared RIPASA and Alvarado scores with multi slice computed tomography (MSCT) for diagnosing acute appendicitis (AA). The mean RIPASA score was 11 in the Simple Acute Appendicitis group compared with other forms of Acute Appendicitis such as perforated appendicitis, gangrenous appendicitis etc. which had a score of more than 12.⁵⁷

Out of the 14 cases with $RIPASA \geq 12$, 12 were gangrenous/perforated appendicitis. Of the remaining two, one was found to be acute suppurative appendicitis and the other, acute appendicitis on HPE. Thus, the probability of gangrenous/perforated appendicitis was very high with a RIPASA score ≥ 12 .

Similar findings were observed in the previously mentioned study by Marwah Karan et al., who concluded that there is high possibility of finding a gangrenous appendix when the RIPASA score exceeded 12.⁵⁴

Among the 19 cases with RIPASA 10-11.5, there were 12 cases of suppurative appendicitis, 6 cases of acute appendicitis and 1 case of perforated appendicitis on HPE. Out of 67 cases with RIPASA 7-9.5, all were acute appendicitis on HPE. Similar findings were reported by Marwah Karan et al., who concluded that for the RIPASA scoring system, mean scores of 8.6, 10.1 and 11.9 correlated with acute appendicitis, suppurative and gangrenous appendicitis respectively.

In 15 cases with RIPASA 5-7, on active observation two cases upgraded to a score > 7 while the rest were excluded from the study.

The relation of TLC and appendicitis was quite significant in our study with 51 cases of acute appendicitis and 27 patients of perforated appendicitis having leukocytosis.

These results were in accordance with study by Yang et al.⁵⁸ including high association between TLC and acute appendicitis (Chi-square = 12.80, $P < 0.0001$).

On correlating TLC with HPE positive and negative cases it was found that the sensitivity and specificity of the TLC count was 80.9% and 75%. It was comparable with the studies done by Hoffmann³⁸ (81-84%) Peltola⁵⁹ (76%) Marchand⁶¹ (81-84%) Yang⁵⁸ (71.4%) indicating high association between TLC count and acute appendicitis ($p = 0.011439 > 0.025$).

Our study had no significant association in relation to serum bilirubin markers and diagnosis of appendicitis.

This was comparable in a study done by Broker M.E.E et.al who performed a study on 498 patients and concluded that there was no significant association of serum bilirubin and diagnosis of appendicitis.

In our study, all patients underwent USG of which a majority of 67 cases had diameter > 6 mm of appendix, 63 cases had target appearance of appendix and 30 cases had appendicolith on USG. 41 cases had non-compressibility. Total 90 cases were diagnosed on the basis of USG were taken for surgery. 10 cases were doubtful of appendicitis so, subjected for CT scan.

P. Antonopoulos et al (2006) demonstrated the usefulness and validity of spiral CT in the evaluation and diagnosis of acute gangrenous appendicitis. Common imaging finding in all patients that were examined by spiral CT was the enlargement of the appendix >6mm, intraluminal air-bubbles and calcified faecoliths, the wall of the inflamed appendix was demonstrated abnormally thin and thickening of the appendiceal wall.⁶²

Similar finding were seen in a study conducted by Sachar Sudhir, (2013) the main USG features for diagnosing acute appendicitis were an incompressible appendix with a transverse outer diameter of >7 within compressible periappendicular inflamed fat with or without an appendicolith.⁶³

In a study by Hussain S, Rahman A, Abbasi T, Aziz T (2014) established diagnostic accuracy of Ultrasonography (USG) in acute appendicitis taking histopathology of removed appendix as the gold standard. Results showed out of 60 patients for whom USG of right lower quadrant was performed, 30 patients were correctly diagnosed as having acute appendicitis on USG. USG has sensitivity of 88%, specificity of 92%, and positive predictive value of 94%.⁶⁴

Sinan Cakirer, Muzaffer Basak, Bulent Colakoglu, Mujdat Bankaoglu (2002) determined the sensitivity, specificity, and diagnostic accuracy of helical computed tomography (CT) in confirming the diagnosis of acute appendicitis. Results yielded a sensitivity of 94.7%, a specificity of 91.7%, a positive predictive value of 96.7%, and a negative predictive value of 86.8%.⁶⁵⁻⁶⁶

In our study there was no difference noted in the effect of pain in both the groups of patients on day 1. Pain was more evident in patients operated with perforated appendicitis on day 3 whereas decreased in case of non-perforated appendicitis.

Most common morbidity was suture site infection and seroma which was more common in case of perforated appendicitis. There was no mortality noted in our study.

A similar study was done by Paul G. Blomqvist et.al and the results were similar with low incidence of mortality or morbidity. There was a higher risk of morbidity in cases with perforated appendicitis with commonest being wound infection.⁶⁸

In our study, non-perforated appendicitis yielded no growth of any bacteria in 34 patients and in

16 patients of perforated appendicitis. The most common bacteria associated with appendicitis were *E. coli*, followed by streptococcus and klebsiella in perforated appendix.

A similar study was performed by V. K. E. LIM et.al *E. coli* was found to be the most commonly encountered organism. This was followed in order of decreasing frequency by streptococci, *Bacteroides* species, *Klebsiella* Enterobacter group and *Pseudomonas aeruginosa*. From the results of the antibiotic sensitivities an antibiotic regimen comprising of a combination of gentamicin, metronidazole and penicillin is recommended as appropriate chemotherapy in perforated appendix.⁶⁹

Bennion R S et.al performed a study on 30 patients and concluded results similar to our study with the commonest bacteria associated as *E. coli*.⁷⁰

VI. CONCLUSION

In a study of 100 cases, 71 cases were non-perforated and 29 cases were perforated appendix. The most common age group being 15-30 years.

There was a significant association in diagnosis of perforated and non-perforated appendicitis based on TLC.

The factors which influenced diagnosing perforated appendicitis were age, TLC, increase time duration, RIPASA score >10, bacterial association.

Perforation was not associated with elapsed time to hospital presentation among adult patients admitted for appendectomy across a large number of diverse hospitals. Our findings are consistent with the hypothesis that perforation is more often a prehospital event and that delays in presentation confer increased risk.

RIPASA score is a fast, simple, reliable, non-invasive, repeatable and safe diagnostic modality without extra expense. It is very handy in peripheral hospitals (rural India) where back up facilities like USG scan or CT scan is not available. It can be very helpful for junior doctors provided it is applied purposefully and objectively in patients of abdominal emergencies. The application of this scoring system improves diagnostic accuracy and consequently reduces negative appendectomy and thus reduces complication rates. Thus we recommended use of RIPASA scoring system in rural hospitals where other diagnostic modalities are not available.

VII. SUMMARY

AIM: To carry out a comparative Study of Clinico-pathological profile of patients undergoing emergency appendectomies and to determine the factors influencing the risk of perforated appendicitis.

Introduction: The diagnosis of acute appendicitis has always been clinical. Clinical scoring systems such as

RIPASA score and ALVARADO score, USG, CT scan have been used in the past as modalities for diagnosis. They have been used as separate modalities but never in adjunct to each other. So these modalities were used to determine the factors influencing the risk of perforated appendicitis.

Materials and methods: 100 cases of pain in right iliac fossa, which were operated for acute appendicitis were included in the study. The cases which were managed conservatively, appendicular lump and abscess were excluded from the study.

Results: The mean age for perforated appendicitis was 28.65 ± 15.64 as compared to that of non-perforated appendicitis was 28.92 ± 11.40 . TLC $>15,000$ was a high indicator for perforation. 8 patients had perforated appendix with a RIPASA score greater than 12. USG was a good modality for diagnosis with 90% sensitivity and CT scan when performed diagnosed appendicitis. E. coli was the most common bacteria causing appendicitis in 28 patients. The most common immediate post-operative complication was pain and delayed complication being suture site infection in cases of perforated appendicitis. There was no death recorded in our study.

Conclusion: There was no association between perforation and delay in presentation to hospital among patients treated with emergency appendectomy. RIPASA score is a better diagnostic score in comparison to other scoring modalities. The factors which influenced diagnosing perforated appendicitis were age, TLC, increase time duration, RIPASA score >10 , bacterial association.

REFERENCES RÉFÉRENCES REFERENCIAS

- Guthery S L, Hutchings C, Dean J M, Hoff C. National estimates of hospital utilization by children with gastrointestinal disorders: analysis of the 1997 kids' inpatient database. J Pediatr. 2004; 144:589.
- Addiss D G, Shaffer N, Fowler B S, Tauxe R V. The epidemiology of appendicitis and appendectomy in the United States. Am J Epidemiol. 1990; 132:910.
- JAMA Surgery, Time to Appendectomy and Risk of Perforation in Acute Appendicitis. Res. 2014 Nov; 8(11): NC03-NC05.
- Scher K S, Coil J A Jr. Appendicitis: factors that influence the frequency of perforation. South Med J. 1980; 73(12):1561-1563.
- Detmer D E, Nevers L E, Sikes E D Jr. Regional results of acute appendicitis care. JAMA 1981; 246 (12): 1318 - 20.
- Fits R H: Perforating Inflammation of Vermiform Appendix: with special references to its early diagnosis and treatment. Trans Assoc Am Physicians., 1886; 1: 107.
- Kearney D, Cahill R A, O'Brien E, Kirwan W O, Redmond H P. Influence of delays on perforation risk in adults with acute appendicitis. Dis Colon Rectum. 2008; 51(12):1823-1827.
- Liu K, Ahanchi S, Pissanchi M, Lin I, Walter R. Can acute appendicitis be treated by antibiotic alone. Am Surg. 2007; 73:1161-1165.
- Anderson R. E.: Meta-analysis of the clinical and laboratory diagnosis of appendicitis. Br. J. Surg. 2004; 91: 28-37.
- Borushok K F, Jeffrey R B Jr, Laing F C, et al. Sonographic diagnosis of perforation in patients with acute appendicitis. AJR Am J Roentgenol. 1990; 154(2):275Y278.
- Lally K P, Cox C S Jr, Andrassy R J. Appendix. In: Townsend C M, Beauchamp R D, Evers B M, Mattox K L, editors. Sabiston text book of surgery. 16th edn. Philadelphia: WB Saunders Company; 2001. p 918, 919, 920.
- J.W Glover, the human vermiform appendix A general surgeon's reflections. TJ (now journal of creation) 1988; 3(1):31-38.
- Ellis H. Appendix, in Schwartz Si (ed). Maingot's abdominal operations, 8th ed, vol 2. Norwalk, Conn: Appleton-Century-Crofts, 1985; 1255.
- Mc Burney C: Experience with early operative interference in cases of disease of the vermin form appendix. Ny state med J 50: 676; 1889.
- Seymour I Schwartz; F Charles Brunicaudi; et al. Schwartz's principles of surgery. 9th edition, New York. McGraw-Hill, Medical Pub. Division, 2010; 1-47.
- Volker Schumpelick, Bernhard dreuw, Kerstin Ophoff, Andreas Prescher, appendix and caecum Embryology, Anatomy, and Surgical applications Surgical Clinics of North America, Feb 2000; 8(1): 295-318.
- Poole G V. Anatomic basis for delayed diagnosis of appendicitis. South Med J 1990; 83(7): 771-773.
- Williams P I, Bannister L H, Berry M M, Collins P, Dyson M, Dussec J E, et-al alimentary system In GRAY'S ANATOMY ..36th edition, Churchill Livingstone, New York. 1995, 1353-1354.
- SAHANA'S HUMAN ANATOMY, Descriptive and Applied. Vol-II, Ankur Publications (AP): Jul 1994, 362-367.
- Romanes, CUNNINGHAM'S TEXT BOOK OF ANATOMY 12th edition OXFORD: 1981, 462-463.
- Treaves F, Lectures on the anatomy of the intestinal canal and peritoneum in man. Brit Med J, 1885; 1:527-530.
- Wakeley CPG. The position of vermiform appendix as ascertained by the analysis of 10,000 cases J. Anat 1933; 67: 277-283.
- Nicholson, Percy: Mechanical lesions of the Appendix in children as a basis for appendicitis. Jour. Paediatrics, 1936 Nov; 9:647-654.

24. Downs TMK. Congenital malformations of Vermiform appendix: A Familial Disease. *Ann Surg*, 1942; 115: 21-24.
25. Collins D C, Agenesis of vermiform appendix. *Am J Surg*. 1951; 82:689.
26. Waugh T H. Appendix Vermiformis Duplex. *Arch Surg* 1941; 42: 311-320.
27. Russel, Norman S. Williams, Christopher J.K.Bulstrode, Bailey & Love's SHORT PRACTICE OF SURGERY , 24th edition. London: ARNOLD: 2004; 1203-1218.
28. Harold Ellis, L. Keith Nathanson. Appendix and Appendectomy in Maingot's ABDOMINAL OPERATIONS, Vol-II, 10th edition. APPLETON AND LANGE: 1997; 1191-1227.
29. Stanley L, Robbins et-al, Basic pathology. WB Saunders International, 5th edition, 1994, 519-520.
30. Seymour I Schwartz; F Charles Brunicaudi; et al. Schwartz's principles of surgery.9th edition, new York. McGraw-Hill, Medical Pub. Division, 2010; 1-47.
31. Bickell N A, Aufses A H Jr, Rojas M, Bodian C. How time affects the risk of rupture in appendicitis.*J Am Coll Surg*. 2006; 202(3):401-406.
32. Redmond J M, Smith G W, Wilasrusmee C, Kittur DS. A new perspective in appendicitis: calculation of half time (T (1/2)) for perforation. *Am Surg*. 2002; 68(7):593-597.
33. Kearney D, Cahill R A, O'Brien E, Kirwan W O, Redmond H P. Influence of delays on perforation risk in adults with acute appendicitis. *Dis Colon Rectum*. 2008; 51(12):1823-1827.
34. Papandria D, Goldstein S D, Rhee D, et al. Risk of perforation increases with delay in recognition and surgery for acute appendicitis. *J Surg Res*. 2013; 184(2):723-729.
35. Michael F. Ditillo, D O,* James D. Dziura, PhD, † and Reuven Rabinovici, M D*et al Is it safe to delay appendectomy in adults with acute appendicitis.
36. Chng C F, Adi M I, Thien A, et al, Development of the RIPASA score: a new appendicitis scoring system for the diagnosis of acute appendicitis. *Singapore Med J*. 2010; 51:220-25.
37. Cueto J, D'Allemagne B, Vazquez-Frias J A, Gomez S, Delgado F, Trullenque, et al. RIPASA score: a new appendicitis scoring system 2012.
38. Alvarado A. A practical score for the early diagnosis of acute appendicitis. *Ann Emerg Med* 1986; 15:557-64.
39. Chong C F, Adi M I, Thien A, et al, Development of the RIPASA score: a new appendicitis scoring system for the diagnosis of acute appendicitis. *Singapore Med J*. 2010; 51:220-25.
40. Puylaert JCBM. Acute appendicitis: US evaluation using graded compression. *Radiology* 1986; 158:355-360.
41. Orr R K, Porter D, Hartman D. Ultrasonography to evaluate adults for appendicitis: decision making based on meta-analysis and probabilistic reasoning .*Acad Emerg Med* 1995; 2:644-65.
42. Erdem H, Çetinkünar S, Daş K, Reyhan E, Değer C, Aziret M et al. Alvarado, Eskelinen, Ohlmann and Raja Isteri Pengiran Anak Saleha Appendicitis scores for diagnosis of acute appendicitis. *World J Gastroenterol*. 2013; 19(47):9057-62.
43. International Research Journal of Medical Sciences, Bacterial Profile Associated with Appendicitis, SSN 2320 -7353 Vol. 1(2), 1-4, March (2013) *Int. Res. J. Medical Sci*.
44. Rao P M, Rhea J T, Novelline R A, et al. Effect of computed tomography of the appendix on treatment of patients and use of hospital resources. *N Engl J Med*. 1998; 338:141-146.
45. Hansen A J, Scott Y W, De Petris G, et al. Histologic severity of appendicitis can be predicted by computed tomography. *Arch Surg*. 2004; 139: 1304 -1308.
46. Eriksson S, Granstrom L, Bark S. Laboratory tests in patients with suspected acute appendicitis. *Acta chirurgica Scandinavica* 1989; 155:117-120.
47. Vermeulen B, Morabia A, Unger PP. Influence of white cell count on surgical decision making in patients with abdominal pain in the right lower quadrant. *Eur J Surg* 1995; 161:483-6.
48. Doraiswamy N V. Leucocyte counts in the diagnosis and prognosis of acute appendicitis in children. *Br J Surg* 1979; 66:782.
49. Poole G V. Anatomic basis for delayed diagnosis of appendicitis. *South Med J* 1990; 83(7): 771-773.
50. Gurleyik G, Gurleyik E. Age related clinical features in older patients with acute appendicitis. *Eur J Emerg Med* 2003; 10:200-3.
51. Luckman, R. Davis P: The epidemiology of acute appendicitis in California :racial, gender and seasonal lvariation. *Epidemiology* 2:323 1991.
52. Anderson R Hugader, A, Thulin, Nystrom, P. O. Olaison G: Indications for operation in suspected appendicitis and incidence of perforation 1994.
53. Hartwig Korner, Karl Sondenaa, Jon Arne Soreide: Incidence of Acute Non-Perforated Appendicitis: Age-specific and sex-specific analysis 1997.



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Needling of the Surgical Neonate for Access and for Sampling; The Burden of the Trauma

By Okoro Philemon Ekemenye & Opara Peace I.

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Abstract- Background: Pricking of neonates with needles to access the vascular space and to obtain blood samples is among the common procedures performed in neonates. Whereas they can be imperative to the survival of these patients, repeated and multiple needling can lead to morbidity and sometimes, mortality.

Aim: To evaluate the burden of needle pricks on neonates who were managed for surgical conditions in our practice and to identify the factors that increase this burden.

Patients and Methods: This is a two years prospective study of surgical neonates treated in our service. Data analyzed were: age, sex, diagnosis, indication for pricking, part of body pricked, the cadre of the clinician, the technique of pricking, the total number of pricks during admission, and complications.

Results: A total of 167 neonates participated in the study. Interns performed the majority of the pricks, 1344 (35%) and junior residents, 1882 (49%).

Keywords: pricks; needling; burden; peripheral vascular access; trauma; sampling.

GJMR-I Classification: NLMC Code: WS 420, WI 100



NEEDLING OF THE SURGICAL NEONATE FOR ACCESS AND FOR SAMPLING THE BURDEN OF THE TRAUMA

Strictly as per the compliance and regulations of:



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Results: A total of 167 neonates participated in the study. Interns performed the majority of the pricks, 1344 (35%) and junior residents, 1882 (49%). The mean number of pricks per case was 27.2 (± 4.8), range 4-59. The most challenging complication was necrotizing fasciitis.

Conclusion: The neonates received a high number of pricks in the course of their treatment. The less experienced (junior) doctors performed the majority of the pricks. There is a need for training workshops for trainees on the techniques for vascular cannulation and blood sample collection.

Keywords: pricks; needling; burden; peripheral vascular access; trauma; sampling.

I. INTRODUCTION

Needling of neonates is among the common painful procedures performed in neonates. Repeated pricking for blood samples for monitoring of parameters are almost unavoidable in the treatment of surgical neonates. In our practice, peripheral veins are the most commonly used for vascular access in surgical neonates. The peripheral vascular access (PVA) is a crucial component of the care of surgical neonates. ^[1] Despite the advent of the use of imaging, simple visualization and palpation are still considered in simple cases. ^[2] Simple visualization and palpation of peripheral veins remain the technique for identification of peripheral veins in our center and many other centers in our region. ^[3] Gaining access to the vascular space can be quite challenging, and the need for such access can become desperate in

emergency cases. Despite its usefulness, the process of gaining PVA can place significant physical and metabolic stress on the ill neonate. ^[4] There is no available report evaluating the burden of pricks and needling for peripheral vascular access and blood sampling on the surgical neonates in our practice. This study seeks to highlight this unrecognized potential contributor to morbidity and mortality in the surgical care of neonates.

II. AIMS / OBJECTIVE

We aimed to evaluate the burden of needle pricks on neonates managed for surgical conditions in our practice, to identify the factors that increase this burden, and to propose ways to reduce them.

III. PATIENTS AND METHODS

This is a 2 year prospective study of babies 28 days and below who were admitted in our Special Care Baby Unit for surgical conditions between March 2015 and February 2017. A proforma was designed and used to obtain data. Inclusion criteria were: age of 28 days or below, diagnosis of a surgical condition, and no prior attempt at peripheral vascular access or blood sampling at the time of admission. Exclusion criteria were age more than 28 days, prior peripheral vascular access or blood sampling at the time of presentation, a non surgical diagnosis, and referral to other centers or discharge against medical advice. The following data were obtained from the patients: age, sex, diagnosis, duration of admission, indication for pricking/ needling, part of body pricked/ needled, cadre of clinician performing procedure, technique of access, number of attempts before a successful access, total number of attempts on each patient, and complications. First attempt success was defined as a situation where the aim of the prick was achieved with the first piercing of the skin by the pricking device. Each attempt was considered ended when the sharp instrument/ device comes out of the skin. The SPSS 17.0 was used to analyze the data.

IV. RESULTS

A total of 167 neonates were included in the study; 98 males and 69 females, (M: F= 1.4:1). The median age on admission was 5.2 days with a range of 30 minutes to 26 days. One hundred and twenty five

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patients were term, while 42 were preterm. The diagnosis was mostly congenital gastrointestinal anomalies. The mean duration of admission was 12.5 (± 4.7) days with a range of 4 to 56 days. The indications for pricks were diagnostic (sampling) in 1312 (34%), and therapeutic in 2538 (66%) (Table 1). The devices used for pricking were intravenous canula (2328) (60.1%), lancet/ free needle (960) (25%), syringe needle (520) (13.5%) and scalp vein (32) (0.8%). The upper limbs were the site of pricking in 2140 (55.7%) of the attempts, lower limbs in 1184 (30.8%), the scalp in 452 (11.8%), the groin in 46 (1.2), the neck in 18

(0.5%). The mean number of pricks per neonate was 27.2 (± 4.8), range 4-59. Patients with gastrointestinal conditions bore a huge part of the burden of pricks in this study (Table 2). The vast majority of the needling/ pricking were performed by the junior doctors but first attempt success rate was highest with the senior residents (Fig. 1). The complications encountered were mostly related to pricks for peripheral vascular access. The most common being vascular infiltration with swelling but the most serious complication was necrotizing fasciitis (Table 3). There was no mortality directly attributed to the pricks.

Table 1: Indications for Needle Pricks

Indication	No. of Needle Pricks	Percentage (%) (n=3840)
Collection of Blood Sample (Diagnostic)	1312	34.1
Blood Transfusions	247	6.4
Infusions	1635	42.5
Intravenous Drugs	346	9.0
Intramuscular Injections	228	5.9
Subcutaneous Injections	82	2.1

Table 2: Patients Diagnosis Versus Number of Needle Pricks

Number of Pricks	GIT	Urologic	Vascular	Neoplastic	Multiple	Trauma	Infections
01-10	3	3	2	6	5	4	9
11-20	25	5	1	6	4	1	2
21-30	34	-	-	3	7	-	3
31-40	23	-	-	-	3	1	3
41- 50	4	-	-	-	2	-	-
51- 60	5	-	-	-	2	-	1
Total	94	8	3	15	23	6	18

Table 3: Complications of Pricking

Complications (N=37)	Cases	Percentage
Vascular Infiltration	22	59.5
Phlebothrombosis	6	16.2
Haematoma	4	10.8
Vascular Access Site Infection	3	8.1
Necrotising Fasciitis	2	5.6

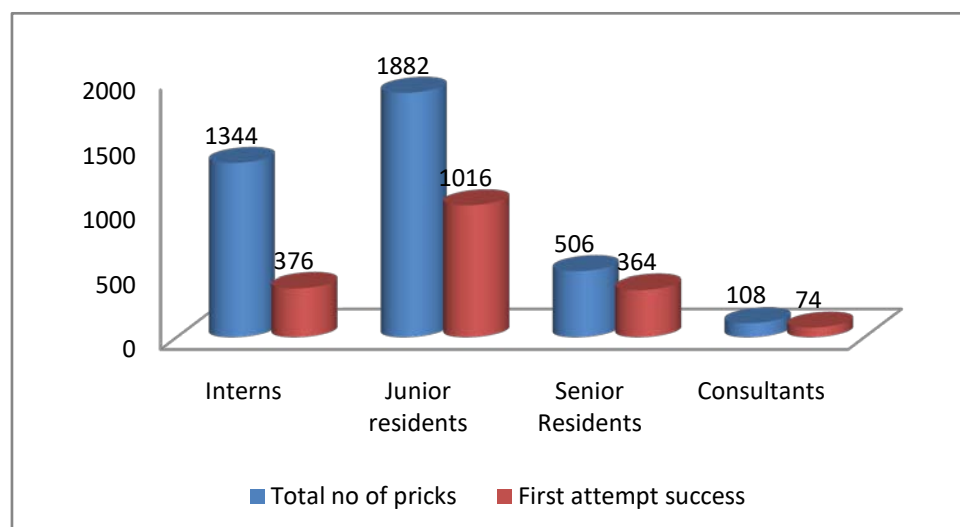


Fig. 1: Frequency of Needle Pricks according to Category of Clinician Performing the Procedure

V. DISCUSSION

The procedures for peripheral vascular access (PVA) are recognized as being among the commonest painful procedures in neonates.^[5] In this study, blind intravenous canulation was by far the most common technique whereas heel pricks were much less used. This is in contrast with the findings by Kapellou who reported heel punctures of up to 87% and venepuncture of 8-13% in their series.^[6] The present study also shows that neonates with gastrointestinal surgical conditions tended to bear more of the burden of needle pricks. This is understandable since such gastrointestinal conditions often preclude enteral feeds and fluid administration for extended periods. It also highlights the need for such cases to be handled by the more experienced clinician ab initio, and to consider institution of central line early. The extent of burden seen in our cases is attributable to the general difficulty of identifying and canulating the peripheral vessels in neonates particularly without the use of imaging techniques to enhance visualization. Some researchers have tried to reduce this difficulty by the use of infrared light to make the veins more visible, but reports of its benefit are inconsistent.^[7] Application of topical anaesthetics, and use of cooling vibration analgesia for peripheral vascular access (PVA) have been reported to significantly reduce the distress in children and is being encouraged in adults too.^[8, 9] This, ostensibly, also helps to calm the patient and increases the chances of a successful attempt at PVA. The use of ultrasound and fluoroscopy has also been described and favorable results reported particularly with central veins.^[10, 11] However, we do not have experience with use of infrared light or topical anaesthetics for PVA in neonates, and we do not use any of them presently. A more recent study suggests that topical anaesthetics may not be of benefit in newborns, and their long-term effects are yet unknown.^[12] We have encouraged mothers to carry their babies to enhance skin-to-skin contact during venepuncture, though not as a policy in our practice. However, the benefit of this is still controversial.^[13] Attempts at PVA in our practice solely relies on the ability of the clinician to visualize, and or palpate and canulate the vessel. The choice of the region of the body for PVA should be the part that offers the best chance of successful attempt.^[14] The upper limbs followed by the lower limbs are the most commonly used regions in our practice. However, in using the lower limb in neonates, we tend to avoid attempts at blind canulation of the long saphenous vein, with a view to preserving it for possible cut-down except in desperate situation. This is in contradistinction from the practice in some other centres where the saphenous vein is preferred when the lower limb is to be used for PVA.^[15] This study shows that the vast majority of the attempts at PVA were made by the junior doctors. These junior doctors were less

experienced as demonstrated by the far lesser first attempt success rate among them relative to those of the senior doctors. More than fifty percent of our patients received more than twenty pricks at the time of discharge from the hospital. This demonstrates a high burden of needle pricks on the surgical neonates. A clear factor to this high burden is the fact that the less experienced junior doctors did more of the pricks than their more experienced senior colleagues. The implications of less experienced doctors doing more of the PVA attempts are that commencement of certain treatments or procedures, or laboratory investigation may be delayed further than expected. In addition, commenced treatment may be irregular or inadequate due to unreliable access. Aside the pain, and physical stress on the newborn baby, multiple needle pricks in different parts of the body can summate to equate to significant trauma. The finding of high incidence of vascular infiltration (and phlebitis) among our patients is in line with findings by Buenfil et al.^[16] The complications seen in our patients in this study clearly point to the morbidity associated with pricks. However, this study has the limitation of not being able to evaluate the impact and trauma of repeated painful needle pricks and handling of neonates on their morbidity and mortality.

Techniques, like mothers carrying their babies to maintain skin-to-skin contact, and use of oral glucose during painful procedures have been reported to be pain relieving.^[17,18] The benefit of these measures remains controversial but we believe they can enhance patient cooperation and increase the first attempt success rate among the clinicians. We recommend that special workshops and training for the junior doctors and trainees to enhance their skills of pricking for PVA and blood sampling should become part of the curriculum for junior doctors particularly, the new intakes. We recommend a policy where any clinician has a specified number of pricks for any particular indication, after which a more senior colleague will be expected to step in. Also, the clinician must ensure that the right circumstances are present before starting any effort at securing a PVA or collecting blood sample. Adequate lighting, enough hands to stabilize the patient, appropriate size canula, tourniquet, hand gloves and other gadgets must be ensured to achieve a successful attempt at PVA or sample collection.

VI. CONCLUSION

Neonates with surgical conditions are exposed to a big burden of several painful pricks in efforts at securing PVA or blood sampling in our practice. Despite having less chances of securing PVA with first attempt, the interns and junior residents, perform the vast majority of the PVAs in our practice. This is a major contributor to the high number of pricks per neonate

being treated for surgical condition. There should be a balance between the need for junior doctors to train, and safety and comfort of neonates. More focused training on skills for PVA and blood sampling will increase the first attempt success rate among the trainees and ultimately reduce the burden of needle pricks on the neonates. Creation of special team of nurses or doctors who will be specially involved in PVAs will remarkably reduce the burden of securing peripheral vascular access in newborn babies in our practice and those of others in similar setting. Proper planning and timing can reduce the need for repeated pricking for different tests, if all the samples can be collected at one go.

Conflicts of Interest

The authors have no conflicts of interest.

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REFERENCES RÉFÉRENCES REFERENCIAS

- Church J. T, Jarboe M. D. Vascular access in the pediatric population. *Surg Clin North Am* 2017; 97(1): 113-128.
- Elkhunovich M, Barreras J, Bock Pinero V, et al. The use of ultrasound for peripheral IV placement by vascular access team nurses at a tertiary children's hospital. *J Vasc Access* 2017; 18(1): 57-63.
- Mbamalu D, Banerjee A. Methods of obtaining peripheral venous access in difficult situations. *Postgrad Med J* 1999; 75: 459-462.
- Jona J. Z. Vascular access in the newborn. In: Prem Puri, (Ed) *Newborn Surgery*, Arnold, 2003: PP. 120-129.
- Cruz M. D, Fernandes A. M, Oliveira C. R. Epidemiology of painful procedures performed in neonates: A systematic review of observational studies. *Eur J Pain* 2016; 20(4): 489-98. doi: 10.1002/ejp.757. Epub 2015 Jul 29.
- Kapellou O. Blood sampling in infants (reducing pain and morbidity). *BMJ Clin Evid* 2011; PII: 0313.
- Parker S. I, Benzie K. M, Hayden K. A. A systematic review: effectiveness of pediatric peripheral intravenous catheterization strategies. *J Adv Nurs* 2016; doi: 10.1111/jan.13211.
- Bond M, Crathorne L, Peters J, et al. First do no harm: pain relief for the peripheral venous cannulation of adults, a systematic review and network meta-analysis. *BMC Anesthesiol* 2016; 16(1): 81.
- Schreiber S, Cozzi G, Rutigliano R, et al. Analgesia by cooling vibration during venipuncture in children with cognitive impairment. *Acta Paediatr* 2016; 105(1): e12-6. doi:10.1111/apa.13224. Epub 2015 Nov 4.
- Wiles B. M, Child N, Roberts P. R. How to achieve ultrasound- guided femoral venous access: the new standard of care in the electrophysiology laboratory. *J Inter v Card Electrophysiol* 2017; doi: 10.1007/s108 40-017-0227-9.
- Lausten - Thomsen U, Merchaoui Z, Dubois C, et al. Ultrasound - guided subclavian vein cannulation in low birth weight neonates. *Pediatr Crit Care Med* 2017; 18(2): 172-175. Doi:10.1097/PCC. 000000000 0001028.
- Foster J. P, Taylor C, Spence K. Topical anaesthesia for needle-related pain in newborn infants. *Cochrane Database Sys t Rev* 2017; 2: CD010331. doi:10.1002/14651858.CD010331.pub2.
- Johnston C, Campbell-Yeo M, Fernandes A, et al. Skin-to-skin care for procedural pain in neonates. *Cochrane Database Sys t Rev* 2014; 23: (1): CD008435. doi: 10.1002/14651858.CD008435. pub2.
- Adeniran J. O, Heij H. A. Vascular access in children. In: Emmanuel Ameh, Stephen Bickler, Kokila Lakhoo, Benedict Nwomeh, Dan Poenaru. Ed., *Paediatric Surgery: a comprehensive text for Africa*, Global Help, USA. 2010: PP. 47-54.
- Gaballah M, Krishnamurthy G, Berman JI, et al. Lower extremity vascular access in neonates and infants: A single institutional experience. *J Vasc Interv Radiol* 2015; 26(11): 1660-8. doi: 10.1016/j. jvir.2015.08.004.
- Buenfil - Vargas M. A, Espinosa- Vital G. J, Rodriguez - Sing R, et al. Incidence of adverse events associated to the use of short peripheral venous catheters. *Rev Med Inst Mex Seguro Soc* 2015; 53 Suppl 3: S310-5.
- Olsson E, Ahlsén G, Eriksson M. Skin-to-skin contact reduces near-infrared spectroscopy pain responses in premature infants during blood sampling. *Acta Paediatr* 2016; 105(4): 376-80. doi: 10.1111/apa.13180. Epub 2015 Oct 10.
- Matar E. M, Arabiat D. H, Foster M. J. Oral glucose efficacy on neonate's pain responses at the NICU: A quasi experimental trial of two clinical procedures. *Appl Nurs Res* 2016; 32: 36-40. doi: 10.1016/j. apnr. 2016.04.002. Epub 2016 Apr 9.

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Indication	No. of Needle Pricks	Percentage (%) (N=3840)
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Intravenous Drugs	346	9.0
Intramuscular Injections	228	5.9
Subcutaneous Injections	82	2.1

Table 2: Devices used for Needle / Sharp Pricks

Devices	No. of Pricks	Percentage
Intravenous Canula	2328	60.6
Lancet / Free Needle	960	25
Scalp Vein Needle	32	0.8
Syringe Needle	520	13.5

Table 3: Distribution of Needle Pricks according to Region of Body Involved

Region of Body	Pricks	Percentage
Upper Limbs	2140	55.7
Lower Limbs	1184	30.8
Scalp	452	11.8
Groin	46	1.2
Neck	18	0.5

Table 4: Patient Distribution according to Total Number of Pricks during Treatment

Number of Pricks	Patients (N=167)	Percentage
01-10	32	19.2
11-20	44	26.3
21-30	47	28.1
31-40	30	17.9
41-50	6	3.6
51-60	8	4.8

Table 5: Patients Diagnosis Versus Number of Needle Pricks

Number of Pricks	GIT	Urologic	Vascular	Neoplastic	Multiple	Trauma	Infections
01-10	3	3	2	6	5	4	9
11-20	25	5	1	6	4	1	2
21-30	34	-	-	3	7	-	3
31-40	23	-	-	-	3	1	3
41-50	4	-	-	-	2	-	-
51-60	5	-	-	-	2	-	1
Total	94	8	3	15	23	6	18

Table 6: Frequency of Needle Pricks according to Category of Clinician Performing the Procedure

Cadre of Doctors Performing Procedure	No. of Pricks Performed (N= 3840)	First Attempt Success Rate
Interns	1344 (35%)	376 (28%)
Junior Residents	1882 (49%)	1016 (54%)
Senior Residents	506 (13%)	364 (71.9%)
Consultants	108 (2.8%)	74 (68.5%)

Table 7: Complications of Pricking

Complications	Cases	Percentage
Vascular Infiltration	455	85.2
Phlebothrombosis	42	7.8
Haematoma	16	3.0
Wound Infection (Cut-Down)	6	1.1
Vascular Access Site Infection	8	1.5
Necrotising Fascitis	7	1.3



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Multi-Recurrent Primary Leiomyosarcoma of the Seminal Vesicle: A Surgical Challenge

By Amine Slaoui, Fouad Aoun, Greg Assenmacher, Walid Hajj Obeid, Souhail Regragui, Ayhan Bakar, Nicolas Sirtaine, Francois Xavier Otte, Sideris Spyridon, Thierry Gil, Eric Hawaux, Ksenjia Limani, Thierry Roumeguère, Alexandre Peltier & Amine Slaoui

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Abstract- Background: Rare, primitive tumors of the seminal vesicle are often a poor prognosis. Moreover, the physiopathology remains misunderstood. Tumors are frequently classified as carcinomas and to a lesser extent as sarcomas. We present a challenging case of multi-recurrent primary leiomyosarcoma of the seminal vesicle surgically treated.

Case Presentation: A 58-year-old male patient consulted for a second opinion regarding an incidental discovery of a para-prostatic mass on abdomen-pelvis computed tomography. Further imaging by PET-CT and MRI confirmed the presence of a hyperactive nodule. Trans-rectal biopsies were performed initially showing evidence of benign leiomyoma. The patient underwent surgical removal of the right seminal vesicle by robot-assisted laparoscopy. Pathological examination revealed a grade I leiomyosarcoma of the seminal vesicle with negative margins. The patient did not receive adjuvant therapy. He has benefited close monitoring with both MRI and PET-CT. Thirty months after surgery, he presented evidence of recurrence on MRI imaging. He underwent excision of a right periureteral nodule and a right iliac lymph nodes dissection.

Keywords: leiomyosarcoma, grade 1, seminal vesicle, recurrent.

GJMR-I Classification: FOR Code: NLMC Code: WP 460



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Multi-Recurrent Primary Leiomyosarcoma of the Seminal Vesicle: A Surgical Challenge

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One year later, follow-up showed on MRI a mass infiltrating the right side of the prostate's base and the bladder neck with two new nodular formations on the internal iliac chain.

A robot-assisted laparoscopic radical prostatectomy with tumor mass excision and extended lymph node dissection was performed and histopathological analysis of the specimen determined recurrence of leiomyosarcoma, grade 1 according to the FNCLCC.

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Conclusion: Primary leiomyosarcomas of the seminal vesicle are exceedingly rare, and data on optimal treatment are lacking. Most of the time, a personalized treatment is proposed to the patient according to his characteristics and that of the tumor. This is a rare case of relapsing primary grade I leiomyosarcoma of the seminal vesicle. In the literature, cystoprostatectomy appears to be the treatment of choice for those tumors. This is the only case published in the literature of a recurrent primary grade I leiomyosarcoma of the seminal vesicle with up to 72-month follow-up. Early diagnosis and treatment are essential to improve the prognosis of this disease. Multimodal treatment should be discussed in a multidisciplinary approach.

Keywords: leiomyosarcoma, grade 1, seminal vesicle, recurrent.

I. INTRODUCTION

Seminal vesicle is frequently involved by a contiguous spread of locally advanced malignancies from adjacent organs. However, primary neoplasms of the seminal vesicle are rare with primary adenocarcinoma being the most common (1). Primary leiomyosarcomas of the seminal vesicle are exceedingly rare with only eight cases published in the literature (2).

In addition, the lack of long-term monitoring data explains the fact that we do not have information on the best treatment. Most of the time, a personalized treatment is proposed to the patient according to his characteristics and that of the tumor. Therefore the bloc resection is the cornerstone of management. Here, we report a challenging case of multi-recurrent primary leiomyosarcoma of the seminal vesicle with a follow-up of more than six years, and we review the literature. We discuss as well the potential causes of recurrence and available treatment options.

II. CASE PRESENTATION

Back in 2011, the patient, a 58-year-old male, was referred to our department for an incidental right para-prostatic mass on an abdomen-pelvis computed tomography performed for unspecific abdominal pain. The patient had a history of high blood pressure, burnout, and a stable thoracic aortic aneurysm. To note, the patient had no LUTS and no family history of prostate cancer. Physical exam was unremarkable

nevertheless a slight asymmetry was noticed on digital rectal examination, but no nodule was palpable. The prostate specific antigen level was two ng/ml. To further characterize this mass, a multiplanar MRI was performed. MRI confirmed the origin of the mass from right seminal vesicle with no extension toward adjacent organ. A fluorodeoxyglucose positron emission tomography confirmed the presence of a 2.8 cm mass originating from the right seminal vesicle with a SUVmax of 74 and a transrectal ultrasound-guided biopsy was performed on October 2011. The biopsy revealed the presence of a spindle cell tumor with uniform cigar-shaped and slightly ovoid centrally located nuclei with an abundant granular eosinophilic cytoplasm. The immunohistochemical analysis shows a positive reaction for desmin, caldesmon and smooth muscle actin (SMA). The most likely diagnosed was benign leiomyoma. The patient has had surgical removal of the right seminal vesicle by robot-assisted laparoscopy. Pathological examination showed a grade I leiomyosarcoma of the seminal vesicle with negative margins. These results were further confirmed by anatomopathological revision of the slides by a pathology expert at a referral center in Massachusetts General Hospital-Boston USA. The patient did not receive adjuvant therapy based on a multidisciplinary decision and was closely monitored with both a multiplanar MRI and a fluorodeoxyglucose positron

emission tomography. Thirty months after surgery, he presented evidence of recurrence on both imaging. He underwent a re-excision of the right peri-ureteral nodule and benefited from a right iliac lymph node dissection. The pathological examination revealed a grade I leiomyosarcoma of the right peri-ureteral nodule and the harvested lymph nodes were free of tumor. One year later, follow-up showed another evidence of recurrence. MRI showed a 17 mm mass infiltrating the right side of the prostatic base and protruding inside the bladder neck as well as the appearance of two new nodular formations on the internal iliac chain measuring 11 and 14 mm, respectively (figure 1-3). No distant metastases were seen on fluorodeoxyglucose positron emission tomography. A urethra-cystoscopy did not report any bladder endoluminal lesion but the protrusion of a slightly more right domed prostatic lobe. The measured PSA level was 1.03 ng/ml. After the Oncologic Multidisciplinary Committee approval, a robotic-assisted laparoscopic radical prostatectomy with tumor mass excision was performed. Intra-operatively, peritoneal and para-vesical and iliac nodules were present. Histopathological analysis of the specimen determined recurrence or metastasis of granulocyte leiomyosarcoma, grade 1 according to the FNCLCC (The French Federation of Comprehensive Cancer Centers), known in the patient (Figure 5).

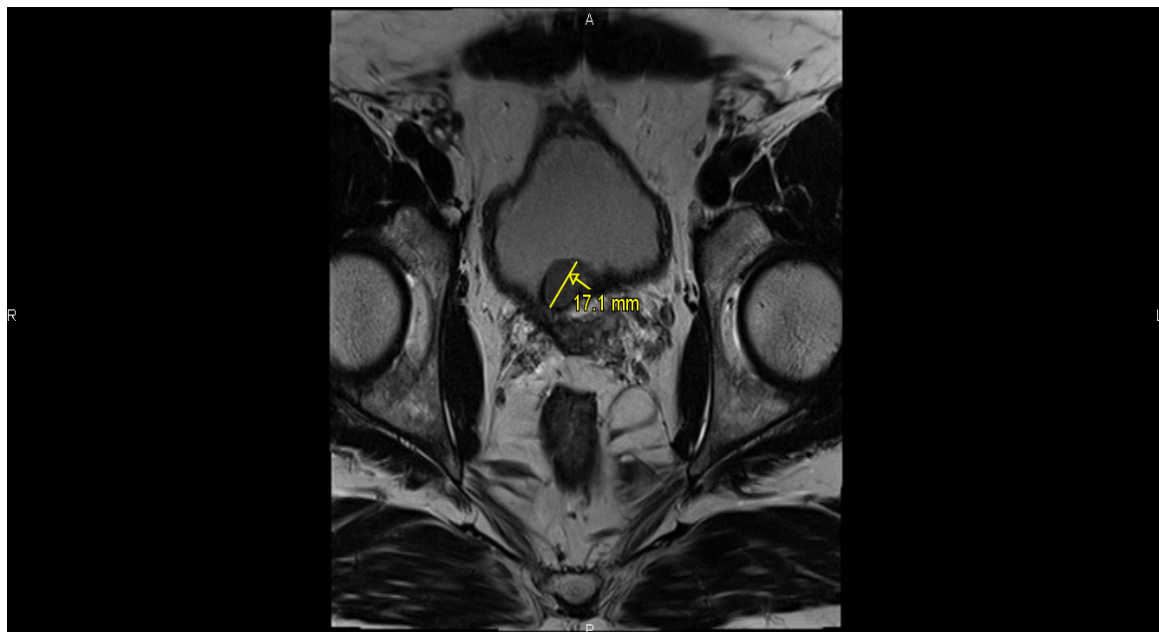


Fig. 1: The Resonance Confirms a Nodular Formation at the Level of the Bladder Floor just Opposite the Central Gland about 17 mm in Diameter (Cross Cut)



Fig. 2: The Resonance Confirms a Nodular Formation at the Level of the Bladder Floor just Opposite the Central Gland about 17 mm in Diameter (Sagittal Cut)

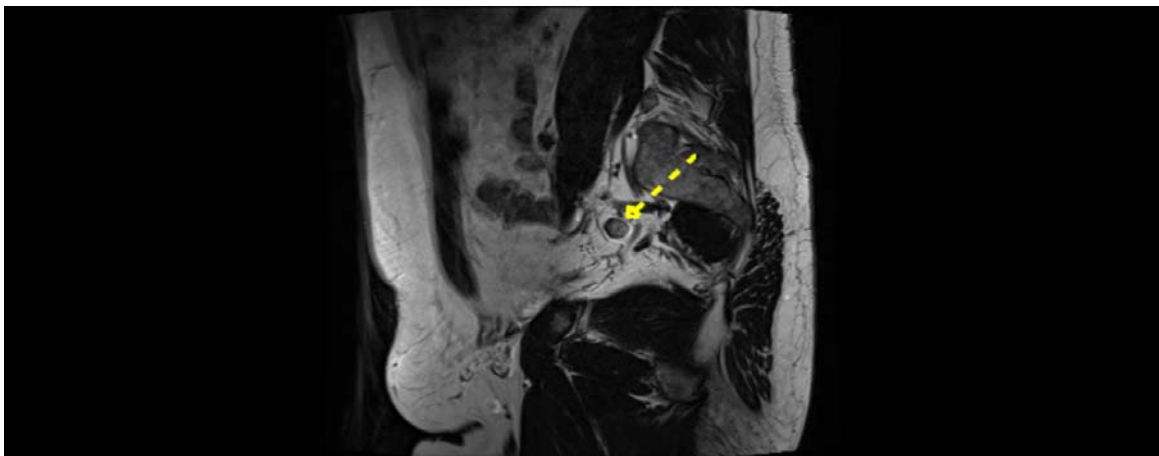


Fig. 3: The Resonance Confirms a New Nodular Formation on the Right Internal Iliac Chain (Sagittal Cut)

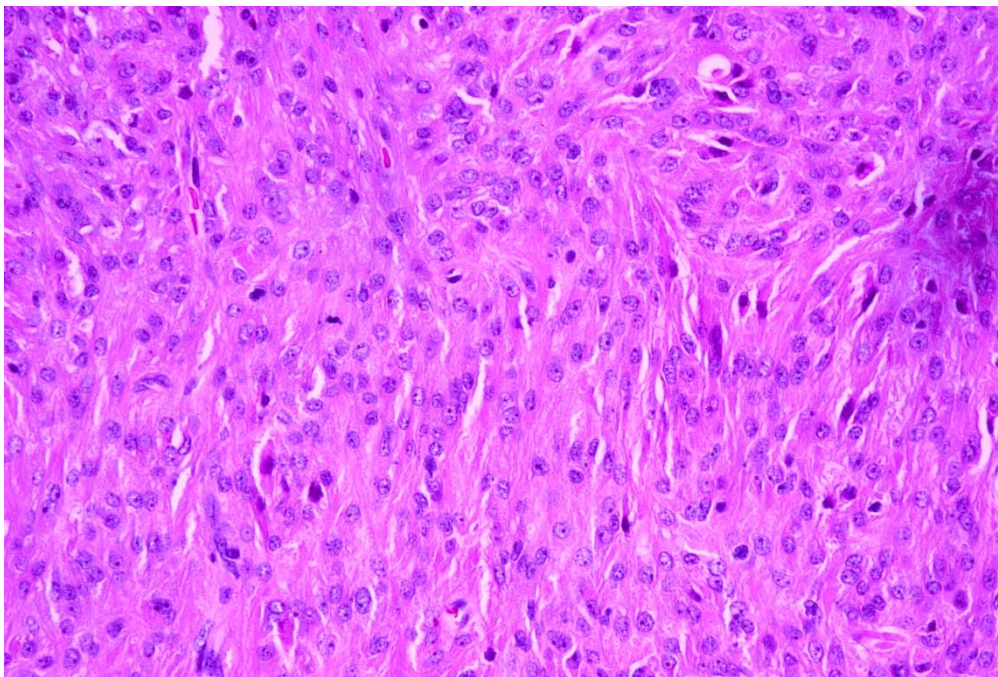


Fig. 4: Mixed Spindle and Epithelioid Tumoral Cells, with Abundant Eosinophilic Granular Cytoplasm, Moderate Atypia, and Low Mitotic Activity. (H & E X400)

III. DISCUSSION

Primary tumor of the seminal vesicle is a rare entity and an exclusion diagnosis at the same time. According to Dalgaard and Giertsen (3), there must be no other demonstrable tumors present in the body because tumor invasion from adjacent organs or secondary localization is far more common than primary one. In our case, imaging, endoscopic work-up and transrectal ultrasound-guided biopsy of the prostate as well as the tumor showed no evidence of bladder and prostatic disease. Surgical resection of the lesion confirmed that a cleavage plane was present between the prostate and right the seminal vesicle where the tumor originates. Additionally, the PSA was not high and the fluorodeoxyglucose positron emission tomography did not detect any other suspected localization in the body. Histopathological examination revealed grade 1 leiomyosarcoma originating from the seminal vesicle with a negative margin.

Primary malignant tumors of the seminal vesicle reported include carcinomas, sarcomas and an unusual group of tumors with mixed epithelial and stromal components (4). Although rare, carcinomas are more common than leiomyosarcomas (5).

A thorough review of the literature revealed eight cases of primary leiomyosarcoma of the seminal vesicle with a limited follow-up.

The table shows that primary leiomyosarcoma is more common in adults than in children, with the average age being 57 years. No specific risk factors have been identified.

Because tumor is asymptomatic, it is challenging to diagnose it. Most of the time, the discovery is fortuitous (by digital rectal examination, or radiologically) similarly to our case. Nevertheless, some patients report urinary and rectal symptoms often due to the size and extent of the tumor. No need to remember that no cases of hemospermia, hematuria or anejaculation have been reported.

Ultrasonography, CT, and MRI can all demonstrate the existence of a tumor mass although MRI being the most sensitive and specific in the pelvis. In this case, the image was strongly suggestive of a tumor originating from the right seminal vesicle. Tumor markers were negative. Our patient had a normal PSA.

The diagnosis is confirmed by histopathological examination of tissues collected by transrectal needle biopsy or by analysis of the surgical specimen. For our patient, a first diagnosis was made following the biopsies and was confirmed at a later stage by the analysis of the various operative pieces.

There are several staging of sarcomas. We used the FNCLCC classification because its performances are much better than the other classifications, regarding of reproducibility, performance and prognostic value (12, 13, 14). Grade 1 is considered

to have a very low risk of recurrence and metastasis (12). The karyotype of our patient was normal so we could not integrate it into a familial leiomyosarcoma form, such as the hereditary leiomyomatosis and renal cell carcinoma (HLRCC) or Reed Syndrome in familial uterine leiomyosarcomas. The HLRCC syndrome is a rare autosomal-dominant condition caused by a mutation in the fumarate hydratase tumor suppressor gene.

The prognosis of seminal vesicle leiomyosarcoma is poor and unfavorable compared to other urological sarcomas from the bladder or paratesticular site (10). We could explain this by the delayed diagnosis due to the unusual form and paucisymptomatic character of this tumor, but also by the difficulty of complete surgical excision. Our case represents the one with interesting because it is the longest follow-up (72 months). We do not find any cases of recurrence for a grade 1 leiomyosarcoma in the literature. Nevertheless, patients with metastatic relapses have been reported suggesting that these sarcomas share prognostic features with other soft tissue sarcomas such as uterine leiomyosarcomas (15).

No standard or ideal treatment for seminal vesicle sarcoma has been established given the limited data in the literature. Nevertheless, through this case, we could conclude that Primary leiomyosarcomas is managed radically by surgery. Two surgical options were proposed: cystoprostatectomy with extended lymphadenectomy, or vesiculo-prostatectomy without cystectomy. There is insufficient data to clearly establish the superiority of one choice over the other. We opted for a vesiculo-prostatectomy because the patient is relatively young, the tumor had a grade 1, and the bladder was free from any lesion. Adjuvant radiotherapy may be used in the case of positive margins even though its role has not yet been clearly established (2,11).

Concerning adjuvant chemotherapy, its role in soft tissue sarcoma remains uncertain (16). The most widely used molecules are mesna, doxorubicin, ifosfamide, dacarbazine in combination (11), but some authors have used other anthracycline-based chemotherapy, gemcitabine and docetaxel, as seen with leiomyosarcomas from other sites (17).

IV. CONCLUSION

This case presents our experience with a multi-recurrent grade 1 primary leiomyosarcoma of the right seminal vesicle that until present revealed no signs of distant metastases, yet poses a surgical predicament. In this report we aim to support the critical significance of regular follow-ups of patients with grade 1 leiomyosarcoma, and aggressive local treatment in an attempt not to compromise long term oncologic outcome.

Table 1: Describing the Characteristics of the Nine Cases of Seminal Vesicle Leiomyosarcoma Reported in the Literature.

Author	Country	Age (Yrs)	Clinical Symptoms	Left / Right	Biopsy	Grade	Patho-logical Margins	Turn or Size	Adju-vent Treat-ment	Follow Up
Schned (6)	USA	69	None (RE)	Left	Yes	Inter-mediate	R0	3,5 Cm	No	14 Months: No Relapse, Alive
Wang (7)	USA	NA	None (RE)	NA	NA	High	R1	NA	No	24 Months: No Relapse, Alive
Wang (7)	USA	NA	None (RE)	NA	NA	High	R1	NA	No	29 Months: Metastasis (Lung), Alive with Disease (Doxorubicin)
Amirkhan (8)	USA	68	Rectal and Pain	Right	Yes	High	R0	10 Cm	No	13 Months: No Relapse, Alive
Muentene (9)	Switzerland	64	Urinary	Left	No	High	R0	8 Cm	No	24 Months: Metastasis (Kidney), Alive with Disease (CT)
Upreti (10)	India	46	Urinary and Pain	Right	Yes	NA	NA	NA	No	6 Months: No Relapse, Alive
Agrawal (11)	India	37	Urinary And Rectal	Right	Yes	Inter-mediate	NA	15 Cm	CT (MAID) + RT	20 Months: No Relapse, Alive
Cauvin (2)	France	59	Rectal	Right	Yes	Inter-mediate	R1	8 Cm	RT	29 Months: Metastases (Subcutaneous, Lung, Liver: MAI); 51 Months: Alive with Disease (Gemcitabine-Docetaxel)
Our Case	Belgium	58	Unspecific Abdominal Pain (CT)	Right	Yes	Low	R0	2,8 Cm	No	75 Months: Alive, Relapse + Metastases: Peritoneal Nodules

RE: rectal examination, NA: not available, CT: chemotherapy, MAID: mesna + doxorubicin + ifosfamide + dacarbazine, RT: radiation therapy.

Abbreviations:

PET-CT: Positron emission tomography computed tomography.

MRI: Magnetic Resonance Imaging.

FNCLCC: The French Federation of Comprehensive Cancer Centers.

LUTS: Lower urinary tract symptoms.

SUVmax: Standardized Uptake Value.

SMA: Smooth muscle acting.

PSA: Prostate-specific antigen.

Consent for Publication:

We obtained the written informed consent of the patient for the publication of this case report and accompanying images.

Availability of Data and Material:

All data and material are available.

Declaration of Interest:

The authors declare that they have no conflicts of interest in relation to this article.

Funding:

The authors have no funding.

Authors Contributions:

A.S: Wrote the article.

F.A, G.A, W.O, S.R, A.B, N.S, FX.O, S.S, T.G, E.H, K.L, T.R, A.P: Have read and corrected the article

REFERENCES RÉFÉRENCES REFERENCIAS

1. Kaifa Tang, Fa Sun, Yuan Tian, Yuehai Xiao, Chao Sun and Pengfei Wang. Primary squamous cell carcinoma of the seminal vesicle: A case report Mol Clin Oncol. 2016 Mar; 4 (3): 416-418.
2. Cauvin et al.: Primary leiomyosarcoma of the seminal vesicle: Case report and review of the literature. BMC Cancer 2011; 11 : 323.
3. Dalgaard J. B, Giertsen J. C. (1956) Primary carcinoma of the seminal vesicle: case and survey. Acta Pathol Microbiol Scand 39 : 255-267.
4. Olivetti L, Laffranchi, De Luca V. Cystosarcoma Phyllodes of the Seminal Vesicle: A Case Report and Literature Review Case Rep Urol. 2014; 2014: 302708.
5. Thiel R, Effert P: Primary adenocarcinoma of the seminal vesicles. J Urol. 2002, 168: 1891-1896.
6. Schned A. R, Ledbetter J. S, Selikowitz S. M: Primary leiomyosarcoma of the seminal vesicle. Cancer 1986, 57: 2202-2206.
7. Russo P, Brady M. S, Conlon K, Hajdu S. I, Fair W. R, Herr H. W, Brennan M. F: Adult urological sarcoma. J Urol. 1992, 147: 1032-1036. Discussion 1036-1037.
8. Amirkhan R. H, Molberg K. H, Wiley E. L, Nurenberg P, Sagalowsky A. I: Primary leiomyosarcoma of the seminal vesicle. Urology 1994, 44: 132-135.
9. Muentener M, Hailemariam S, Dubs M, Hauri D, Sulser T: Primary leiomyosarcoma of the seminal vesicle. J Urol 2000, 164: 2027.
10. Upreti L, Bhargava S. K, Kumar A: Imaging of primary leiomyosarcoma of the seminal vesicle. Australas Radiol 2003, 47: 70-72.
11. Agrawal V, Kumar S, Sharma D, Singh U. R, Gupta A: Primary leiomyosarcoma of the seminal vesicle. Int J Urol 2004, 11: 253-255.
12. Trojani M, Contesso G, Coindre Jm, et al: Soft-tissue sarcomas of adults: study of pathological prognostic variables and definition of a histopathological grading system. Int J Cancer 1984, 33, 37-42.
13. Coindre J. M, Terrier P, Guillou L, et al : Predictive value of grade for metastasis development in the main histologic types of adult soft tissue sarcomas : a study of 1240 patients from the French Federation of Cancer Centers Sarcoma Group - Cancer 2001, 91, 1914-26.
14. Guillou L, Coindre Jm, Bonichon F et al: A comparative study of the NCI and FNCLCC grading systems in a population of 410 adult patients with a soft tissue sarcoma. J Clin Oncol 1997, 15, 350-62.
15. Benabdejlil Y, Elmarjany M, Babahabib A, Elhassani M, Chahdi H, Jaouad Kouach J, Driss Rahali Moussaoui, Mohammed Dehayni M. Relapsing uterine leiomyosarcoma: report of a case Pan Afr Med J. 2014; 19: 74.
16. Blay J. Y, Le Cesne A: Adjuvant chemotherapy in localized soft tissue sarcomas: still not proven. Oncologist. 2009, 14: 1013-1020.
17. Hensley M. L, Maki R, Venkatraman E, Geller G, Lovegren M, Aghajanian C, Sabbatini P, Tong W, Barakat R, Spriggs D. R: Gemcitabine and docetaxel in patients with unresectable leiomyosarcoma: results of a phase II trial. J Clin Oncol. 2002, 20: 2824-2831.

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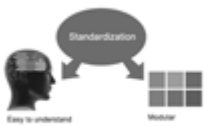
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2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



FORMAT STRUCTURE

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

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For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

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TIPS FOR WRITING A GOOD QUALITY MEDICAL RESEARCH PAPER

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

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6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

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10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.



20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
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- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- o Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- o In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- o Present a background, such as by describing the question that was addressed by creation of an exacting study.
- o Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- o Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- o Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- o Do not include raw data or intermediate calculations in a research manuscript.
- o Do not present similar data more than once.
- o A manuscript should complement any figures or tables, not duplicate information.
- o Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- o You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- o Give details of all of your remarks as much as possible, focusing on mechanisms.
- o Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- o One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- o Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	C-D	E-F
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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