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Etiological Spectrum of Obstructive Jaundice in a Tertiary Care Hospital

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Objectives: To determine the etiological spectrum of obstructive jaundice in a tertiary care hospital.

Methods: Cross sectional observational study was done in this study. A detailed history and thorough physical examination followed by investigations including liver function test, ultrasonography of whole abdomen & in some selective cases CT scan was done. The data had collected in a pre designed data collection sheet.

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Etiological Spectrum of Obstructive Jaundice in a Tertiary Care Hospital

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Results: 29 patients (58%) had malignant obstructive jaundice and 21 patients (42%) had benign causes of obstructive jaundice. Amongst the malignancies, carcinoma head of the pancreas was the commonest, 15 patients (30%) followed by the carcinoma gall bladder 8 patients (16%). Regarding the benign cause's choledocholithiasis was most common cause, 11 patients (22%) followed by 4 patients (8%) stricture of common bile duct. Amongst the common symptoms anorexia, weight loss and clay colored stool were more frequent in patients with malignant disease and abdominal pain and fever were in benign conditions.

Conclusion: Obstructive jaundice in our setting is more prevalent in females and the cause is mostly malignant. Carcinoma head of pancreas is the commonest malignancy while choledocholithiasis is the commonest benign cause.

Keywords: obstructive jaundice, etiological spectrum, tertiary care hospital, morbidity and mortality.

I. INTRODUCTION

Obstructive jaundice is a common surgical problem that occurs when there is an obstruction to the passage of conjugated bilirubin from liver cells to intestine.¹ It is among the most challenging conditions managed by general

surgeons and contributes significantly to high morbidity and mortality.² The management of obstructive jaundice poses diagnostic and therapeutic challenges to general surgeons practicing specially in resource-limited area.² There is huge discrepancy between the recognized causes of obstructive jaundice at various centers and it is mandatory to determine pre-operatively the existence, the nature of obstruction because an ill-chosen procedure can lead to high morbidity and mortality.³

Jaundice due to biliary obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions.⁴ The surgical jaundice can be caused by the obstruction of the bile duct due to some benign causes like as stone in common bile duct, strictures and some malignancy, such as cholangiocarcinoma, periampullary carcinoma, carcinoma gall bladder and carcinoma head of pancreas.⁵

The symptoms of obstructive jaundice include jaundice with or without pain, dark urine, pruritis, pale stools, weight loss and anorexia.⁶

Obstructive jaundice is characterized by the raised levels of serum alkaline phosphatase rather than aspartate transaminase.⁷ There are various investigations which could be carried out for the diagnosis of obstructive jaundice like ultrasonography,⁸ which can pick up stones, dilated intra-extra hepatic channels, any mass in the abdomen and presence of fluid in the peritoneal cavity, but the gold standard is Endoscopic Retrograde Cholangiopancreatography (ERCP).⁹ ERCP can pick up choledocholithiasis, strictures of CBD, any obstruction of the CBD as well as helps in taking the brushing cytology. Another important non-invasive procedure is Magnetic Resonance Cholangiopancreatography (MRCP). Computerized Tomography (CT), Endoscopic ultrasound and Percutaneous Transhepatic Cholangiopancreatography (PTC) can also be used when required.¹⁰ Invasive tests may cause cholangitis and imaging techniques like computed tomography (CT) scan, PTC, ERCP and MRCP are expensive and are not readily available in most centers.¹¹

Surgery in jaundiced patients is associated with a higher risk of postoperative complications compared with surgery in non jaundiced patients.¹² These complications primarily consist of septic complications (cholangitis, abscesses and leakage), hemorrhage, impaired wound healing and renal disorders.¹² Understanding factors responsible for increased

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morbidity and mortality in these patients will better guide appropriate management.¹³

II. OBJECTIVE OF THE STUDY

The main objective of this study was to determine the etiological spectrum of obstructive jaundice in a tertiary care hospital.

III. MATERIALS AND METHODS

A Cross sectional observational study was done in the Department of Surgery, Rangpur Medical College Hospital, Rangpur, during July-2012 to June-2014. Patients of obstructive jaundice admitted in different surgical wards of Rangpur Medical College Hospital, Rangpur were included in this study. The sample size was 50. Purposive sampling method was used as per inclusion and exclusion criteria. All patients were given an explanation of the study and informed written consent was taken. None of the names were used in the data bases.

After proper counseling a detailed history was taken and a thorough physical examination was done to detect the causes of obstructive jaundice. Routine investigations including ultrasonography of whole abdomen specially hepatobiliary system & pancreas to detect the cause & level of biliary obstruction and liver function test. When cause of biliary obstruction could

not be ascertained by sonographically then CT scan was done with all possible means a pre-operative diagnosis was made. The final diagnosis was based on per-operative findings and histopathological findings of the resected specimen.

Data was collected by pre design data collection sheet. Appropriate statistical analysis of the data was done using computer based SPSS (Statistical Program for Social Science) version-16.0. For comparison of data Chi-square probability test was performed. For each analytical test level of significance was 0.05 and $p < 0.05$ was considered significant. The study was done with existing facilities in Rangpur Medical College Hospital.

IV. RESULTS

The mean age was 50.40 (29-70years), $SD \pm 10.92$. Majority of benign cases was seen in 31-40 years of age, while the malignant cases were more common above 50 years old. Female are more prevalent both in benign and malignant. The male to female ratio for benign jaundice was 1:1.33, while it was 1:1.23 for the malignant obstructive Jaundice. 37 (74%) number of the patients in this study belong low socio-economical conditions. Among them malignant patients are more (42%).

Among distribution of various causes with nature (n=50)

Nature	Causes	No. of patients	Percentage (%)	Total (n=50)
Benign	Choledocolithiasis	11	22	21 42%
	Post cholecystectomy biliary stricture	4	8	
	Post cholecystectomy CBD stone	2	4	
	Worm in CBD	2	4	
	Choledochal cyst	2	4	
Malignant	Carcinoma head of the Pancrease	15	30	29 58%
	Carcinoma GB	8	16	
	Cholangiocarcinoma	3	6	
	Periampullary carcinoma	3	6	

n=number of patient

Benign in 21 (42%) cases, whereas 29 (58%) patients had malignant cause. Choledocholithiasis was the commonest benign cause whereas carcinoma head of the pancreas was commonest in malignant group.

Among distribution of association of symptoms and signs with diagnosis, itching was present in 32 patients (64%). In benign-66.66% and 62.02% in malignant condition which is statistically not significant. Clay coloured stools was present in 35 patients (70%). In benign condition, it was 11patients (52.38%) and in malignant condition 24 patients (82.75%) and statistically significant. Pain abdomen was present in 27 patients (54%). 19 patients (90.47%) with benign and 8 patients (27.58%) with malignant etiology presenting with this symptom. Pain is predominantly present in

case of benign diseases and it was statistically significant. Anorexia was present in 29 patients (58%). In benign condition it was 5 patients (23.80%) and in malignant condition it was 24 patients (82.75%) and statistically significant in case of malignant.

Weight loss was present in 30 patients (60%). In benign condition it was 4 patients (19.04%) and in malignant condition it was 26 patients (89.65%) and statistically significant for a malignant etiology. Fever was present in a total of 27 patients (54%) with benign condition 17 patients (80.95%) and malignant condition 10 patients (34.48%) which was statistically significant for benign disease. Gall bladder was palpable in 14 patients (28%). In patients with benign condition 1 patients (4.76%) and malignant condition 13 patients

(44.82%) which was statistically significant for a malignant etiology.

In evaluation of imaging techniques for diagnosis, all patients underwent USG, 41 patients (82%) revealed cause of obstruction but in case of 9 patients (18%) exact cause of obstruction could not be ascertained and 12 patients underwent CT scan, most of them were malignant cases and detect accurate cause of obstruction in 11 patients (91%). Sensivity of ultrasonogram was 82% but CT scan 91%. Almost all benign cases diagnosed were made correctly pre-operatively but in malignant, some cases confirmed diagnosis made after histopathology.

Regarding treatment, all choledocholithiasis patients were treated by choledocholithotomy and insertion of T-tube. After laparotomy 4 cases of carcinoma gall bladder were found such an advanced stage that only biopsy specimen were taken, other 4 cases of carcinoma gallbladder were treated with extended cholecystectomy, other than this all malignant cases were treated as palliative surgery like double or triple bypass. Maximum palliative surgery done by double bypass procedure in the form of hepaticojejunostomy and jejunojejunostomy.

V. DISCUSSIONS

The mean age of the patients with the benign or malignant etiology of obstructive jaundice was 50.40 (29-70years), $SD \pm 10.92$. Most of the patients with the benign jaundice were between 31–40 years of age while malignant causes were more common in the older patients and were maximally seen >50 years of age. The increased incidence of malignant obstructive jaundice with the increasing age has also been reported by various study.^{6, 14, 15}

In this study, both the benign and malignant obstructive jaundice are found more commonly amongst the females than males. The male to female ratio for benign jaundice was 1:1.33, while it was 1:1.23 for the malignant obstructive Jaundice. The increased incidence of obstructive jaundice amongst the females is due to the fact that gall stones are frequently found in them.^{16,17} Some study support this findings.^{14,16} In case of nature, malignant obstructive jaundice was more common than benign, 58% Vs 42% which is in agreement with other studies reported elsewhere.^{1,16,18-20} but in contrast to Bekele *et al*⁵ in Ethiopia who reported benign obstructive jaundice as the most common cause of obstructive jaundice. Regarding the benign causes choledocholithiasis was most common cause, 11 patients (22%) followed by 4 patients (8%) stricture of common bile duct, 2 patients (4%) post cholecystectomy CBD stone, 2 patients (4%) worm in CBD, 2 patients (4%) choledochal cyst. Choledocholithiasis was also found to be the commonest benign cause in others study.^{14,18-21} Amongst the malignancies,

Carcinoma head of pancreas was the commonest, 15 patients (30%) followed by the carcinoma gall bladder 8 patients (16%), cholangiocarcinoma 4 patients (8%) and periampullary carcinoma 2 patients (4%). Similar incidence of various malignancies in patients of obstructive jaundice has been seen in various studies.^{14,20,21} These observations reflect differences in etiological spectrum from one centre to another. Among the symptoms, pruritis was present in 32 patients (64%) which was near to equally in both the benign 14 patients (66.66%) and 18 patients (62.02%) in malignant cases. Clay coloured stools was present in 35 patients (70%). In benign condition, it was 11 patients (52.38%) and more commonly by patients with the malignant jaundice 24 patients (82.75%).

The pain in the abdomen was present in 27 patients (54%) and it was more frequently seen amongst the benign causes 19 patients (90.47%) and almost always present in every case of choledocholithiasis. While 8 patients (27.58%) with malignancy also had abdominal pain on presentation possibly due to advanced disease.¹⁶

Anorexia was present in 29 patients (58%) and was more frequently seen amongst the patients of malignant jaundice, 24 patients (82.75%) and it was statistically significant. In benign condition it was 5 patients (23.80%). Weight loss was present in 30 patients (60%). In benign condition it was 4 patients (19.04%) and in malignant condition it was 26 patients (89.65%). Fever was present in a total of 27 patients (54%) with benign condition 17 patients (80.95%) and malignant condition 10 patients (34.48%) which statistically significant for benign etiology. Gall bladder was palpable in 14 patients (28%). The palpable gall bladder was appreciated in 13 patients (44.82%) with malignancy thus supporting the 'Courvoisier's law'^{16,22}, and only 1 patients (4.76%) gall bladder palpable in cases benign condition.

Amongst the radiological investigations ultrasonogram was the initial imaging investigation for all cases of obstructive jaundice to diagnose the cause of obstruction. Forty one patients (82%) USG revealed cause of obstruction but in case of 9 patients (18%) exact cause of obstruction could not be ascertained. CT scan has several advantages over USG. CT scan was done in patients mostly suspecting of malignancy in USG. Tumor size, its local, regional and distant spread can more accurately be determined by CT scan. CT scan done in 12 patients and detect accurate cause of obstruction in 11 patients (91%). ERCP cannot performed as because this facility was not available in our hospital. Though ERCP has been defined as a 'Gold Standard' for the diagnosis of obstructive jaundice.²³ The final diagnosis was then made based upon the results of histopathology and then results were drawn.

Justification of treatment modalities in the biliary obstruction depend on the site and nature of

obstruction. All choledocholithiasis patients were treated by choledocholithotomy and insertion of T-tube. In all cases of malignancies surgical resection were try to done but not possible as because malignant patients came to our hospital with advanced stage. This delayed presentation of patient to the physician probably due to social and cultural factors and also nature of the disease itself. So all malignant cases were treated as palliative surgery like double or triple bypass. Maximum palliative surgery done by double bypass procedure in the form of hepaticojejunostomy and jejunojejunostomy.

VI. LIMITATIONS

We have some limitations of this study like, small sample size, as the study was hospital based cross sectional study-it is difficult to generalize the findings to the whole community population and ERCP has been defined as a 'Gold Standard' for the diagnosis of obstructive jaundice but this facility is not available in our hospital.

VII. CONCLUSION

Carcinoma of the head of pancreas is the commonest malignant cause of jaundice whereas stones in the bile duct the commonest benign etiology. Most of patients with malignant obstructive jaundice present late with advanced disease and the only treatment modality for these patients was palliative surgery. In this area latest investigating technology facilities are not available or affordable. Majority of the patients were diagnosed by history, clinical examination, liver function test and ultrasonogram.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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REFERENCES RÉFÉRENCES REFERENCIAS

1. Mohamed S, Syed AI. Management of Obstructive Jaundice: Experience in a tertiary care surgical unit. *Pakistan Journal of Surgery* 2007; 23:23-25.
2. Ahmad I, Jan AU, Ahmad R. Obstructive Jaundice. *J Postgrad Med Inst* 2001; 15: 194-8.
3. Nadkarni KM, Jahagirdar RR, Kagzi RS, Pinto AC, Bhalerao RA. Surgical obstructive jaundice. *J Postgrad Med* 1981; 27: 33-9.
4. Roche SP, Kobos R. Jaundice in the adult patient. *American Family Physician* 2004; 69: 299-304.
5. Bekele Z, Yifru A. Obstructive jaundice in adult Ethiopians in a referral hospital. *Ethiop Med J* 2000; 38: 267-75.
6. Aziz M, Ahmad N, Faizullah. Incidence of malignant obstructive jaundice-A study of hundred patients at Nishtar Hospital Multan. *Ann KE Med Coll* 2004;10:71-3
7. Hayat JO, Loew CJ, Asress KN, McIntyre AS, Gorard DA. Contrasting liver function test patterns in obstructive Jaundice due to biliary strictures and stones. *QJM* 2005; 98(1): 35-40.
8. Ghaffar A, Buledi GQ, Imran M. Role of imaging in obstructive jaundice. *J Surg Pakistan* 2004; 9: 24-6.
9. Khurram M, Durrani AA, Hasan Z, Butt AUA, Ashfaq S. Endoscopic retrograde cholangiopancreatographic evaluation of patients with obstructive jaundice. *J Coll Physicians Surg Pak* June 2003; 13 (6): 325-8.
10. Akhtar S, Mufti TS. Diagnostic accuracy of obstructive jaundice on ultrasonography at Ayub Hospital complex. *J Ayub Med Coll Abbottabad* 1999; 11(1):45-6.
11. Cheema KM, Ahmad F, Gondal SH. Evaluation of etiological incidence and diagnostic modalities in obstructive jaundice. *Pak Postgrad Med J* 2001; 12 (4): 160-4.
12. Uslu A, Nart A, Colak T, Aykas A, Yuzbasioglu MF, Hidir K. Predictors of mortality and morbidity in acute obstructive jaundice: implication of preventive measures. *Hepatogastroenterology* 2007; 54 (77): 1331-4.
13. Buckwater JA, Lawton RL, Tidrick RT. Bypass operation for neoplastic biliary tract obstruction. *Am J Surg* 1965; 109: 100-5.
14. Phillipo L Chalya, Emmanuel S Kanumba, Mabula Mchembe. Etiological spectrum and treatment outcome of obstructive jaundice at a University teaching Hospital in northwestern Tanzania: A diagnostic and therapeutic challenges [Internet]. *BMC Research Notes* 2011, 4:147. Available from: <http://www.biomedcentral.com/1756-0500/4/147>
15. Raed Jawad Witwit. Relation between the clinical presentation and etiology of obstructive jaundice. *Kufa Med Journal* 2011; 14 (1): 209-213.

16. Khurram siddique, Qasim Ali, Shirin Mirza, Aiza Jamil, Aisha Ehsan, Sarmad Latif et al. Evaluation of etiological spectrum of obstructive jaundice. J Ayub Med Coll Abbottabad 2008; 20 (4). 62-66.
17. Channa NA, Khand FD, Bhanger MI, Leghari MH. Surgical incidence of Cholelithiasis in Hyderabad and adjoining areas (Pakistan). Pak J Med Sci 2004; 20: 13–7.
18. S Verma, S Sahai, P Gupta, A Munshi, S Verma, P Goyal. Obstructive Jaundice- Etiological Spectrum, Clinical, Biochemical and Radiological Evaluation: At a Tertiary Care Teaching Hospital. The Internet Journal of Tropical Medicine. 2010; 7 (2).
19. Muhammad Saddique, Syed Abdullah Iqbal. Management of Obstructive Jaundice: Experience in a Tertiary Care Surgical Unit. PJS 2007; 23(1): 23-25.
20. Tariq Wahab Khanzada, Abdul Samad, Waseem Memon, Basant Kumar. Etiological Spectrum of Obstructive Jaundice. JPML. 2008; 22(2): 157-160.
21. Ahmed F, Khan AFA, Ahmed A, Cheema KM. Extra hepatic biliary obstruction: A study o f etiological factors in a teaching hospital. Ann KE Med Coll 1997; 2: 6–8.
22. Russell R.C.G. The Gall Bladder and bile duct. In: Russell R.C.G, Williams N.S, Bulstrode C.J.K. editors. Bailey & Love's Short Practice of Surgery. 24th ed. London. Arnold publishers; 2004. p. 1094–5, 1103–6.
23. Acalovschi M. Cholangiocarcinoma: Risk factors, diagnosis and management. Rom J Intern Med 2004; 42:41–58.