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Infantile Hypertrophic Pyloric Stenosis: Presentation and Outcome in Khartoum Teaching Hospital

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Infantile Hypertrophic Pyloric Stenosis: Presentation and Outcome in Khartoum Teaching Hospital

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Abstract- Background/Aims: Infantile hypertrophic pyloric stenosis (IHPS) is a common cause of gastric outlet obstruction in infants, and presents as one of the most common surgical conditions of infancy. Although there were many published studies about IHPS worldwide; there was very few published study in our local literature. So we conduct this study to investigate IHPS in form of, presentation, management and overall outcome.

Methodology: In this prospective cross - sectional, hospital based study; 42 patients with IHPS, were admitted in Khartoum Teaching hospital department of Pediatric Surgery in the period between Aug. 2011 and May. 2013. Patients were referred from all parts of Sudan. Study variables included were age, gender, and residence, presenting symptoms, clinical sign and postoperative outcomes. Data was collected using a structured, pretested questionnaire and analyzed using a computer program-Statistical Package for Social Sciences (SPSS) version 20. Results were presented in tables and graphs.

Results: Forty two patients with IHPS were studied, 78.6% of them were males, 61.9% of the patients were of 3-6 week age group and 50% of them were a first born child. All patients presented projectile vomiting with severe dehydration observed in 88.1% of them. While 90.5% had palpable epigastric olive like mass 69.0% of them had visible peristaltic wave.

Abdominal U/S was done for all patients, and confirmed the diagnosis in 97.6% of them.

For all patients; open surgical Ramsted's pyloromyotomy was done successfully, with 4.8% complications and 2.4% mortality.

Conclusion: We observed that dehydration and abnormal laboratory values are the most common findings in IHPS. Surgical operation associated with good outcome. Ultrasound has emerged as the modality of choice for diagnosing IHPS as it is easily, available and sensitive.

Keywords: pediatric surgery, infantile hypertrophic pyloric stenosis (IHPS), ramsted's pyloromyotomy.

I. INTRODUCTION

Infantile hypertrophic pyloric stenosis (IHPS) is a common cause of gastric outlet obstruction in infants, and presents as one of the most common surgical conditions of infancy. The lesion is characterized by

gastric outlet obstruction and multiple anatomic abnormalities of pyloric antrum.

The etiology of (IHPS) is obscure but probably is a multifactorial, involving genetic predisposition and environmental factors. Typically; infants with IHPS are clinically normal at birth, but during the first few weeks of postnatal life; they develop non bilious forceful vomiting described as "projectile" ⁽¹⁾.

Gastric outlet obstruction leads to emaciation and, if left untreated, may result in death.

The clinical diagnosis hinges on the palpation of the thickened pylorus or "olive " Abdominal examination is accurate but not always successful, depending on factors such as the experience of the examiner, the presence of gastric distention and, a calm infant ⁽²⁾.

Surgical treatment is curative. The classical operation is a Ramsted's Pyloromyotomy; which may also be performed laparoscopically. Current imaging techniques, particularly sonography, are noninvasive and accurate for identification of (IHPS) ⁽³⁾.

There was very few published study in our local literature. So we conduct this study to investigate IHPS in form of, presentation, management and overall outcome.

II. METHODOLOGY

In this prospective cross - sectional, hospital based study; 42 patients with IHPS, were admitted in Khartoum Teaching hospital department of Pediatric Surgery in the period between Aug. 2011 and May. 2013. Patients were referred from all parts of Sudan. Study variables included were age, gender, and residence, presenting symptoms, clinical sign and postoperative outcomes. Data was collected using a structured, pretested questionnaire and analyzed using a computer program-Statistical Package for Social Sciences (SPSS) version 20. Results were presented in tables and graphs.

III. RESULTS

Forty two patients were admitted in Khartoum Teaching hospital, department of Pediatric Surgery, from Aug 2011 to May 2013; with IHPS.

Thirty three (78.6%) of the patients were males and 9(20.4%) were females. with a male to female ratio

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of 3.7:1. Twenty six (61.9%) of our patients lie in the range between 3-6 week of age group, and 21 (50%) of them were a first born child.

Clinically 42(100%) of the patients presented projectile vomiting; which found to be non bilious in 41(97.6%) patients. 34(81.0%) of the patients had marked weight loss while 24(57.1) of them present with constipation.

Regarding clinical examination 37(88.1%) of the patients were dehydrated, 38(90.5%) had palpable epigastric olive like mass while just 29(69.0%) of them had visible peristaltic wave. With 24(57.1) of the patient had abdominal distension.

Thirty (71.4%) patients had normal Hb level, 24(57.1%) showed low serum K⁺ level compared to 18(42.9) with low serum Na⁺. 8(19%) of the patient had high blood urea level, while just one (2.4%) had elevated serum creatinine.

Abdominal U/S done for all patient; which confirm the diagnosis in 41(97.6%) of the patients, while contrast study was needed to confirm the diagnosis just in one (2.4%) patient.

All the 42 patients received open surgical intervention, and Ramsted's pyloromyotomy was done successfully to all patients; with only 4.8% complication, and 2.4% mortality

Twenty five (59.5%) of our patients had an average postoperative stay of 48 hours.

IV. DISCUSSION

Although there were many published studies about IHPS worldwide; there was very few published study in our local literature. So we conduct this study to investigate IHPS in form of, presentation, management and overall outcome.

In our study we reviewed 42 patients; admitted in Khartoum Teaching hospital department of Pediatric Surgery with IHPS; from Aug. 2011 to May. 2013. Comparison of our study with the AC Paul, et al⁽⁶⁾, Frieda Hulka, et al⁽⁸⁾, Jlidi S, et al⁽⁹⁾, Taylor, et al⁽⁴⁾, and Ismet Faruk ÖZGÜNER, et al⁽⁷⁾ revealed several similar results and many important differences.

Most of our patients (61.9%) were between 3-6 weeks of age group. That's goes with the results of in comparison studies^(4, 6, 7, 8, 9).

In our study there is a male gender dominance (78.6%), with a male to female ratio of (3.7:1); and that's goes with all the above mentioned studies^(4, 6, 7, 8, 9), with a male to femal ratio ranging from (3.8:1) in Jlidi S, et al⁽⁹⁾ to (10:1) in AC Paul, et al⁽⁶⁾ study.

With regards AC Paul, et al⁽⁶⁾ study, he found among 70 male, 49(70%) were a first born male child, and that's goes with our results as (50%) of our patients were a first born male.

Regarding the clinical presentation, 42 (100%) of the patients presented with projectile vomiting; which found to be non bilious in 41 (97.6%) patients. (81.0%)

of the patients had marked weight loss while (88.1%) of the patients were dehydrated, (90.5%) had palpable epigastric olive like mass and (69.0%) of them had visible peristaltic wave. That's comparable to most of the previously mentioned studies; (83.6%) of the patients had the typical history of projectile vomiting and the typical findings of visible peristalsis after a "test meal" and a palpable pyloric tumor in Ismet Faruk ÖZGÜNER, et al⁽⁷⁾ study, and palpable olive like epigastric mass was found in up to (92%) of patents in Sapkota. S⁽⁵⁾ study, while olive' was palpated on examination in 48%, and visible peristalsis seen in 25% in Taylor, et al⁽⁴⁾ study. And that variation is most probably due to patients built; as these sign more obvious in thin wasted patients, beside that the state of gastric fullness also affect the examination finding; as full stomach make a peristaltic wave visible, while an empty stomach facilitate palpation of an olive like epigastric mass.

Thirty (71.4%) patients had normal Hb level, 24(57.1%) showed low serum K⁺ level compared to 18(42.9) with low serum Na⁺. Eight (19%) of the patient had high blood urea level, while just one (2.4%) had elevated serum creatinine. (Table4).

Abdominal U/S done for all patient; which confirm the diagnosis in 41(97.6%) of the patients, while contrast study was needed to confirm the diagnosis just in one (2.4%) patient.

All patients received open surgical intervention, and Ramsted's pyloromyotomy was done successfully to all patients; with only 4.8% complication; in form of inadvertent simple mucosal perforation; repaired with 4/0 vicryl, and wound dehiscence for 1 (2.4%). We had a 1 (2.4%) mortality. Over all outcome of our study is comparable to the international results, for example; AC Paul, et al⁽⁶⁾ had Inadvertent mucosal perforation occurred in 1 case during procedure and Superficial wound infection found in 3 cases (03.89%),

Twenty five (59.5) had average postoperative stay of 48 hours, AC Paul, et al⁽⁵⁾ had 65 (84.41%) patients were discharged on 3rd to 4th postoperative day.

Table 1 : Age & Gender distribution of patients with IHPS

Age	Male	Female	Total
Less than 3 Weeks	1	0	1
3-6 Weeks	20	6	26
More than 6 Weeks	12	3	15
Total	33	9	42

Table 2 : Symptoms of patients with IHPS

Symptoms	Frequency	Percent (%)
Vomiting	42	100
Non Bilious vomiting in character	41	97.6
Projectile vomiting in character	42	100.0
Loss of wt	34	81.0
Constipation	24	57.1

Table 3 : Clinical signs in patients with IHPS

Signs	Frequency	Percent (%)
Abdominal distension	24	57.1
Dehydration	37	88.1
Emaciated	17	40.5
Visible peristaltic wave	29	69.0
Palpable abdominal olive mass	38	90.5

Table 4 : Laboratory investigations of patients with IHPS

Investigation	Normal	Abnormal (low)
Hemoglobin %	30 (71.4%)	12 (28.6%)
Serum potassium	19 (45.2%)	23 (54.8%)
Serum sodium	24 (57.1%)	18 (42.9%)
Blood urea	34 (81.0%)	08 (19.0%) high
Serum creatinine	41 (97.6%)	1 (2.4%) high

P value 0.049

Table 5 : Outcome of surgery in patients with IHPS

Outcome	No	Percent (%)
Uneventfully	39	92.8
Developed complications	2	4.8
Death	1	2.4
Total	42	100.0

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