Astudy of 68 Cases of Infantile Hypertrophic Pyloric Stenosis

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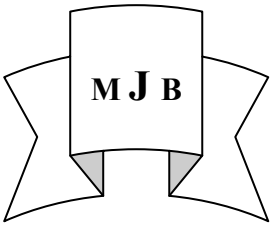

Abstract

Background: First description of IHPS by Fabicious Hildnris in 1640. Harold Hirshsprung described 2 cases in 1888 at that time the treatment was medical by gastric lavage and antispasmodic [1]. Ramistedt's (1911) later simplified the Fredet's (pyloromyotomy).[2]

Aim of study : To study the clinical presentation ,diagnosis ,management and complication of infants with IHPS in Children Welfare teaching hospital.

Patients and Methods: Prospective study of 68 cases of IHPS treated and followed up in children welfare teaching hospital between March 2006 to March 2008

Results: Male to female ratio was 5.8-1.first baby in the family more frequently affected by the disease(70.6%).All patient when full term andthere was no family history of the disease in our study.The peak incidence for time of presentation between 3-6weeks.97% of the cases presented with projectile non bilestianed vomiting.the diagnosis based on history and clinical examination in 76.5% of the caseswhile ultrasound examination was true positive in 100% of cases.The classical ramistedt's pyloromyotomy was done for all our patientS .Post operative persistent vomitingevedent in 26.5%ofcases and it self limiting.No death occured.

Conclusion: Early diagnosis,proper resuscitation and close follow up for apatient presented with IHPS will decrease the incidence of complications.the clinical diagnosis obviates the need for further diagnostic tools.Ramistedts'-Fredet's pyloromytomy remains the procedure of choice in treating IHPS.

دراسة مستقبلية ل ٦٨ حالة من تضيق بوابة المعدة الولادي عند الأطفال الرضع وطرق تشخيصها وعلاجها

الخلاصة

أهداف البحث: يهدف البحث الى دراسة حالة تضيق بوابة المعدة وتشخيصها وعلاجها عند الاطفال الرضع.

طريقة البحث: دراسة مستقبلية ل 68 حالة تضيق بوابة المعدة عند الأطفال.

موقع البحث: كل المرضى عولجوا في مستتشفى حماية الاطفال في بغداد للفترة من شهر اذار ٢٠٠٦ ولغاية شهر اذار ٢٠٠٨.

النتائج:

- كانت نسبة عدد الذكور الى الأناث ٨و٥ : ١ .
- نسبة أصابة الطفل الأول من العائلة كانت أكثر(٦و٧٠%)من باقي الأطفال .
- جميع مرضانا ولدوا بعد فترة حمل كاملة ولم يكن هناك قصة عائلية لنفس المرض في العائلة.
- معظم الحالات المرضية كانت بين الاسبوع الثالث والسادس من عمر الاطفال.
- تشخيص المرض بني على التعاملات السريرية في ٥و٧٦% من الحالات ، وكان الفحص بالأمواج فوق الصوتية موجباً في جميع الحالات(المرضى) .
- العملية الجراحية كانت رامستد الكلاسيكية ولم تسجل مضاعفات أثناء العملية.
- لا توجد حالات وفاة في الدراسة.

الأستنتاجات:

١.التشخيص المبكر والأسعاف الصحيح مع المتابعة الدقيقة للمريض سوف يقلل من المضاعفات في حالات تضيق بوابة المعدة.

٢.التشخيص السريري يغني عن أستعمال الأشعة والسونار في حالة كون العلامات السريرية موجبة.

٣.عملية رامستد تبقى العملية الأفضل لعلاج هذه الحالات .

Introduction

Hypertrophic pyloric stenosis is the most common surgical disorder producing emesis in infancy, which is characteristically projectile or forceful because of the high pressure generated by the hypertrophied gastric muscle.[3]
Physical signs includes:
variable degree of dehydration(a depressed fontanelle, dry mucus membrane in the mouth, poor skin turgor, and eyes may become sunken), jaundice in 2-9% of affected patients.[4]
Visible gastric peristaltic waves passing from left upper quadrant and progress to the right side of midline, it is most prominent immediately after feeding or just before vomiting and eventually terminates in an episode of emesis. [5]
The pyloric mass "tumor" is pathognomonic, depending on the experience and patience of the examiner, it can be identified in 70-90% of cases with hypertrophic pyloric stenosis and the physical examination is focused on palpation of the mass, the lung should be examined because of possibility of aspiration pneumonia.[6]
Ramstedt-Fredet pyloromyotomy is done after correction of general condition of the patient and it is considered the definitive treatment of pyloric stenosis.[7]

Patients and Methods

A prospective study of 68 patients with infantile hypertrophic pyloric stenosis admitted to the pediatric surgery center at children welfare teaching hospital from march 2006 to the end of march 2008. Our patients were referred from different areas in Iraq.

Diagnosis was based mainly on history and clinical examination aided by radiological examination (ultrasound study).

The patients were resuscitated by fluid and electrolytes, a surgical correction under general anesthesia using Ramstedt's procedure with post-operative care; and all patients were followed for a period of time.

Results

* Age and sex: Age of our patients at time of presentation ranged from 3 weeks to 12 weeks. The peak incidence was between 3-6 weeks table (1).

Eighty five patients (85%) of cases were male, while only 10 patients (15%) were female table (1).

* Onset of symptoms: The symptoms started from 1st week of life in 8 patients (11.8%) up to 7th weeks of life two patient (3%) table (2).

* Body weight: History from the mother for 60 patients about birth weight were taken. Only two patient(3%) had low birth weight (2000 gm) and the other patients had birth weight ranging from (2700-3000 gm). Body weight at presentation was taken for all patients, which was ranged from (2500-4500 gm) table (3).

* Sequence of patient in the family: fourty eight patients (70.6%) were the first baby in the family, table (4).

sixty six (97%) patients presented with projectile vomiting,Constipation is the other associated symptom in 52 patients (76.5%), six patients (8.8%) had diarrhea, and the other 10 patients (14.7%) had normal motion.

A palpable mass in 52 patients (76.5%), while peristaltic wave had been detected by feeding test in 54 patients (79.4%).

Other signs as dehydration of diffrent degrees(mild, moderate and severe) in 62 patients (91%), jaundice in 10 patients (14.7%), pallor in 4 patients(5.9%) and dyspnoea in 4 patients (5.9%), table (5), table (6).

Classical Ramstedt's pyloromyotomy were done for all cases (100%).

Intravenous fluid continued postoperatively for 24-48 hours. In 16 patients, oral dextrolyte was given 8 hours postoperatively, and the milk after 24 hours. In the remaining patients (52), dextrolyte or 5% Dextrose was given 24 hours postoperatively, and feeding increased gradually until the baby received full requirement of milk.

Delay recovery from anesthesia in four patient (5.9%). Persistent non-bilious vomiting in 18 patient (26.5%) and later on improved by itself. Gastroenteritis in two patient (3%). table (7)

Table 1 Distribution of the patients by age and sex

Age range	Sex				No.of Patients	Percentage %
	Male		Female			
	No.	%	No.	%		
3 –6	40	59	4	5.9	44	64.7
7 – 10 wks	16	23.5	6	8.8	22	32.3
>10 wks	2	3	0	0	2	3
	58	85	10	15		

Table 2 Onset of symptoms according to the age

Onset of symptom	No. of patient	*Percentage %*
1st week	8	11.8
2nd week	10	14.7
3rd week	10	14.7
4th week	16	23.5
5th week	16	23.5
6th week	6	8.8
7th week	2	3

Table 3 Baby weight (in gram)

Baby weight (gm)	No. of patient	Percentage %
2500<3000	28	41.1
3000<3500	20	29.4
3500<4000	18	26.5
4000<4500	2	3

Table 4 Sequence of the patient in the family

Sequence of patient	No. of patient	Percentage %

1st Baby	48	70.6
2nd Baby	8	11.8
3rd Baby	4	5.9
4th Baby	2	3
5th Baby	4	5.9
9th Baby	2	3

Table 5 Clinical Presentation

	Signs and symptoms	No. of patient	Percentage %
Symptoms	Projectile vomiting	66	97
	Constipation	52	76.5
	Diarrhoea	6	8.8
Signs	Dehydration	62	91
	Feeding test	54	79.4
	Palpable mass	52	76.5
	Pallor	4	5.9
	Jaundice	10	14.7
	Dyspnoea	4	5.9

Table 6 Degree of dehydration at presentation

Degree of dehydration	No. of patients	Percentage %
Mild	44	65
Moderate	14	22.5
Severe	4	6

Table 7 Post-operative complications

Complication	No. of patient	Percentage
Anesthetic complication	4	5.9
Vomiting	18	26.5
Gastroenteritis	2	3

Discussion

We received 68 cases of IHPS in our unit from march 2006 to the end of march 2008 referred from different hospitals in Iraq.

These cases were evaluated, diagnosed and managed during this period.

In our study, the peak incidence of age presentation was between 3 and 6 weeks of age which account for 64.7% of our cases and this is similar to study done by Puri P. and Lakshmandass G. [4]

Eighty-five percent of our cases were males and 15% were females. Male to female ratio 5.8:1. so it appears that it is more common in male and this result resembles many studies, like studies which were done by Davenport M.[8]and Liacouras CA, Scott D, et al (54 boys-10 girls).[9]

In Puri P. study premature infants comprise 10% of the cases, were as less than 4% of patients develop symptoms after 3 months of age, while in our study, all were full term and two of them (3%) was under weight (2Kg), and this may be due to under evaluation because the premature patients my die before reaching the age of presentation.

In our study 22 patients (32%) have the same body weight at birth and at presentation, and 26 patients (38%) have body weight at presentation lower than at birth and this indicate the significance of weight loss and failure to thrive in patients with IHPS.

In our study that first-born male are more frequently afflicted has been disputed, but other study shows the first born males are more likely to be affected than their siblings.[8,10] The later theory was proved in our study, 48 patients (70.6%) are first baby in the family, and 42 patients out of those 48 are males.

A study for epidemiology of IHPS in New York done by Applegate M. shows the risk of pyloric stenosis is lower with older maternal age,[11] and this was shown in our study, where only 10 mothers (14.7%) older than 35 years, probably because the mothers in our country get pregnant early in her life (young mothers) in general.

Family history in our study was negative (0%) and this differ from study done by Maher M. in which the family history in 8.3%, and the other study which was done by Haahr P. and Neilsen J. where 14% of their patients had family history of IHPS.[12,13]

Clinical features:Ninety-seven percent of our patients were presented with projectile vomiting of milk content, and in eight patients(11.8%) of them prescribe associated hematamesis. These results are similar to a study done by Breivil K, Soreid JA and Bland J, in which the projectile vomiting occurred in 92.5% of cases.[14]

Sixty two patients (91%) were dehydrated, 44(65%) of them had mild dehydration, either due to early presentation or due to resuscitation in other hospital before reference .table(6)

In our study patients with jaundice at presentation (10 patients, 14.7%), and the jaundice resolved few days following surgerywhich is similar to a study done by Richard D, jaundice shown in 10% of cases.[15]

Visible gastric peristalsis waves was identified in 79.4% of cases which was differ from other study done by Ammar N., in which this important sign was shown in 52%.[16]

In our study the palpation of pyloric mass was evident in 76.5% of our cases, while in other study done by M. Haghighat, the mass was palpated in 47% of his cases [17], while our results is nearly similar to a study done by Howard P, in which the pyloric mass is readily palpable in 80% of cases.[18]

Ultrasound examination had been done for all our cases by one experienced radiologist, they have a positive results of HPS in 100% which was different from a study done by

Herran PJ,Darling.[19] in which the positive result was evident in 90% of cases.

All patients were resuscitated with intravenous fluid, and electrolyte imbalance was corrected. In addition 6 patients received plasma because of marasmus and two patient received blood for anemia. All patients undergone surgical correction (Ramstedt's pyloromyotomy) under general anesthesia.

Postoperative Persistent vomiting in our study was evident in 26.5% which was lower than study done by Mourtagh K, Peri P, Corlett M et al, the incidence of postoperative vomiting is 50% [20].But our result similar to study done by Luciani JL, Alai H, Polliotto S, et al, the persistent vomiting incidence during first 48 hours reach 31%.[21]

Conclusions and Recommendation

1. IHPS is one of the common challenging problems encountered in the early infancy. Early diagnosis and close follow up are emphasized in order to prevent the development of complications.
2. First born males are more likely to be affected with IHPS than other babies in the family.
3. Classically, projectile non bilious vomiting, visible gastric waves on abdomen and palpable pyloric tumor in a 3-6 week old infant remain the clinical triads of hypertrophic pyloric stenosis.
4. Sonography is a rapid, safe and non invasive procedure, but it need an experienced ultrasonographist.
5. Ramstedt-Fredet pyloromyotomy remains the procedure of choice in treating IHPS with excellent results.
6. Postoperative vomiting does not always mean incomplete pyloromyotomy in IHPS.
7. Proper clinical examination of palpating pyloric olive and positive feeding test obviate the need for further diagnostic evaluation.
8. The availability of experienced ultrasonographers in using the ultrasound are essential to achieve the best results.

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Aortic Regurgitation in Iraqi Hypertensive Patients Frequency and Risk Factors

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