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Original Article

Infantile Hypertrophic Pyloric Stenosis - Experiences of 77 Cases

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Abstract

Infantile hypertrophic pyloric stenosis (IHPS) is the most common cause of gastric outlet obstruction in infants which needs surgical treatment. The aim of this study was to review the management of IHPS in our hospital to compare with other developed centers. This is a prospective analytical study carried out in the Department of Pediatric Surgery, Faridpur Medical College Hospital and Dr. Zahed Children Hospital at Faridpur, during the period of May 2002 to October 2010. Total 77 patients were treated by Ramstedt's pyloromyotomy after proper diagnosis and resuscitation. The male to female ratio was 10:1. Most of the patients presented to us within 40 days of age (90%).Younger one was 15 days and elder one was 69 days. In all cases diagnosis were done on clinical basis. The diagnosis is confirmed by barium meal x-ray in 71 cases and sonogram in 15 cases. Serum electrolytes were not estimated in all patients. There was moderate to severe dehydration in more than 60% cases. 71 cases were operated under general anesthesia and 06 cases were operated with local anesthesia. There was one postoperative death on 4th post-operative day. Oral feeding started after 8 to 10 hours postoperatively in all cases. Mucosal perforation occurred in 1 case and that was recognized and treated conservatively without any ill effect. Superficial wound infection encountered in 3 cases. Early diagnosis, preoperative correction of dehydration and electrolyte imbalance and experiences of surgeons play important role for management of IHPS.

Key words: IHPS, Pyloromyotomy, Dehydration, Local anesthesia, Mucosal perforation.

Introduction

Infantile hypertrophic pyloric stenosis (IHPS) is the most common cause of gastric outlet obstruction in children and is one of the most frequent conditions requiring surgery in the newborn and infant[1]. The first report of IHPS in 1717 included clinical as well as postmortem findings[2]. The disease was not accepted as a true entity until the description of two cases by Hirschsprung in 1888[3]. Lobker, in 1898, was the first to successfully treat a patient using a gastrojejunostomy to bypass the obstructed pylorus. Early surgical mortality rates remained high. Various extra mucosal pyloroplasty techniques were reported in the early 1900s, culminating in Ramstedt's procedure in 1911, which has served as the basis for all surgical techniques[4]. Post operative morbidity and mortality have been reduced owing to improvements in anesthetic technique and correction of fluid, electrolytes and acid-base balance disturbances. Earlier diagnosis and treatment have also seen a reduction in the proportion of infant suffering preoperative metabolic derangement[5]. The aim of this study was to review the management of IHPS in our hands and to discuss the result in relation to those obtained in other developed centers.

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Materials and methods

A prospective analysis was carried out on neonates and infants in the pediatric surgery department of Faridpur Medical College Hospital and in Dr. Zahed Children Hospital at Faridpur between May 2002 to October 2010. Total 77 neonates and infants were included in this study diagnosed as IHPS. Detailed history was taken and complete physical examination done in all cases. In 65 cases diagnosis was based on nature and content of vomiting and visible peristalsis and in 12 cases olive was palpable. Upper GIT contrast x-ray with 35 ml barium in A/P and Right Oblique view done in 71 patients and ultrasonography was done in 15 cases. Dehydration was corrected preoperatively and clinically assessed. The traditional Ramstedt's pyloromyotomy was performed under general anesthesia (92%) and under local anesthesia (8%) through right upper abdominal transverse incision. Wound closed in layers with 4/0 vicryl. Skin closed with subcuticular 4/0 vicryl.

Results

Out of 77 patients, 70(90.90%) were male and 7 (09.10%) were female. The male female ratio was 10:1. Age of presentation of the patient between 2 weeks to 10 weeks (Table-1). Most of the patients (87.02%) were of between 3-6 weeks of age. Among 70 male, 49 were first born male child.

Table I: Age distribution

Age in weeks	Number of patient	%
1-2	3	03.89
3-6	67	87.02
7-10	7	09.09

Severe dehydration was found in 46(59.74%) patient. That required preoperative correction by intravenous fluid therapy. Surgery was not an emergency until dehydration had been corrected. Inadvertent mucosal perforation occurred in 1 case during procedure. That case was managed by repair with 4/0 vicryl reinforced with omental patch. In 76 cases breast feeding was started with after 8 hours of operation. In remaining 1 case feeding was started on 3rd postoperative day. Few episodes of postoperative vomiting persisted in 51 patients (66.23) but no one had vomiting lasting more than 4 days. Superficial wound infection found in 3 cases (03.89%) which were improved with regular dressing. 65 (84.41%) patients were discharged on 3rd to 4th postoperative day. Remaining 10(12.98%) patients discharged after 7 days of operation due to respiratory tract infection.

Discussion

In majority of the cases of our series diagnosis was based on clinical findings, although USG or contrast x-ray was also used to confirm the diagnosis. Ultrasonographic diagnosis depends on exposure and experience of ultrasonologist and appropriate ultrasound probe[6]. In our study, the male-female ratio was 10:1 but in other study it was 4:1[7]. In our series 49 patients were first born male child. It was correlated with other studies[8]. The rate of inadvertent mucosal perforation in our series (1.29%) may be due to desire for obtaining a complete myotomy near duodenal fornix. Some investigations have reported perforation rate 15-30%[9-10] although other centers have achieved much lower rate[11-12]. Available literature suggests that prompt recognition and repair of an incidental perforation is not associated with an increased incidence of morbidity[9,12].

In our centre, we practiced a simple regimen postoperatively whereby patient received mother breast milk 8 to 10 hours after surgery, initially frequent small feed and gradually increased to normal feeding on the subsequent 24 hours. The postoperative stay was 3 to 4 days. In other studies it was 3 to 7 days[13.] Postoperative vomiting occurred in 51(66.23%) patients, but that was not persistent for more than 4 days. This correlates with other studies[14.] It is well known that wound infection is more common after pyloromyotomy than other operation, possibly due to immune dysfunction or metabolic disturbance. In our series superficial wound infection was 03.89%. This correlates with rate of 3-9% reported by others[13,15]. The overall result of our management was excellent. Recurrence of vomiting was not reported in any case of this study. Early diagnosis, preoperative correction of dehydration and electrolyte imbalance, expert anesthetist support and experience of surgeon may play important role for better postoperative outcome of patients with IHPS.

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