ORIGINAL ARTICLE

Risk Factors for the Complications of Paediatric Incarcerated Inguinal Hernia

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ABSTRACT

Aim: To analyze the age and complication in paediatric age group up to 7 years presented with irreducible hernia.
Study design: Prospective study.
Setting: Multan Medical and Dental College/Ibn-e-Siena Hospital and Research Institute, Multan.
Duration of study: From June 2011 to October 2017.
Methodology: This prospective study was carried out in Multan Medical and Dental College/Ibn-e-siena Hospital and Research Institute, Multan from June 2011 to October 2017. Patients up to the age of 7 years with irreducible inguinal hernia were admitted and managed. A total of 80 patients were included in the study.
Results: Among 80 patients, 74(92.5%) were male and 6(7.5%) were female. 28(35%) were under 3months and the remaining 52(65%) were of different ages up to 7 years. Right side hernia was in 59(73.7%) and 21(26.3%) left side hernia. The complication rate was seen in 22(27.5%) patients.
Conclusion: Timely electively surgery, early proceeding for management after the onset of incarceration, creating awareness and improving the health education facilities are the key points in decreasing the morbidity of paediatric incarcerated inguinal hernia.
Keywords: Paediatric, Inguinal hernia, Irriducible.

INTRODUCTION

Inguinal hernia is the most common early diagnosed lesion of paediatric age group, occurs due to the patent process vaginalis, which is normally obliterated at the time of birth or just after birth. When process vaginalis persists due to any reason, inguinal hernia or hydrocele develops according to the caliber of process vaginalis[1].

Inguinal hernias in infants and young children are a result of a failure of the processus vaginalis to close[2]. Once diagnosed, an inguinal hernia should be promptly repaired on an elective basis to prevent the risk of hernia incarceration. Incarceration occurs in about 12% of infants and young children with an inguinal hernia. It is obvious that inguinal hernia never resolves spontaneously. If it is not operated timely, there is high risk of incarceration, followed by certain major complications[3]. To prevent future complications, paediatric inguinal hernia should be repaired as early as it is diagnosed rather to wait for any specific period.

Many countries are struggling with long wait times for elective surgical procedures[4,5,6]. To date, research has been skewed toward examining wait times for surgery and other medical or diagnostic care in adults[7,8,9]. Prolonged wait times for surgery to repair hernias have not been associated with adverse outcomes in adults[10], but the effect of prolonged wait times in children has not been well studied.

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MATERIAL AND METHODS

This prospective study was carried out in Multan Medical and Dental College/Ibn-e-siena Hospital and Research Institute, Multan from June 2011 to October 2017. A total of 80 patients up to the age of 7 years with irreducible inguinal hernia were admitted and managed.

RESULTS

Out of 80 patients, 74(92.5%) were male and 6 (7.5%) were female (Table-1). Most of the patients were seen in the age from 3 months to 1 year as shown in table-2. The incarceration on right side was 51(73.7%) while 29(26.3%) were on left side (Table-3). Duration intervals after onset and examination is shown in table-4. Complications were seen are shown in table-5.

Table-1: Sex distribution (n=80)

Sex	n	%age
Male	74	92.5
Female	06	07.5

Table 2: Age distribution (n=80)

Age	n	%age
0-3 months	28	35.0
3 m- 1 year	22	27.5
1 Y- 3 y	23	28.7
3 y – 7 y	07	08.8

Table-3: Side of hernia (n=80)

Side	n	%age
Right	59	73.7
Left	21	26.3

Table-4: Duration of after onset (n=80)

Duration (hours)	n	%age
06-12	13	16.2
13-24	21	26.3
25-36	23	28.7
37-72	17	21.2
After 72	06	07.5

Table-5: Complications (n=80)

Complication	n	%age
Intestinal infarction	08	10.0
Oophorectomy	02	03.7
Partial omentectomy	07	08.7
Testicular infaction	05	06.2

DISCUSSION

The fact that inguinal hernias are not self-limiting and that there is a risk of complications dictate the need for expedient surgical repair[11]. Parental anxiety while waiting for surgery is another important issue. In a survey by Miller of parents of children awaiting various operations, 49% of the children were waiting for repair of an inguinal hernia[12]. Over 95% of the families in the survey suggested that the wait for surgery was emotionally stressful. Furthermore, 37% felt that waiting for surgery prohibited them from participating in their usual activities. Dissatisfaction with wait times for surgery has also been expressed by adults[13].

The age at the time of admission is given in Table-2. In this the maximum number of patients was under the age of 1 year. From 1 year onward the frequency is gradually decreasing, indicating the maximum rate of incarceration in early age period. Similar findings were observed by the others. Schmitl in his series has noted 177 patients under 3 month of age following incarceration[14]. In literature the importance of early age repair of inguinal hernia has continuously been mentioned. Emphasizing this It is pointed out that incarceration is the most frequent complication during the first year of life[15]. The age as a risk factor of paediatric incarcerated inguinal hernia remained in consideration in many centres[16].

Lau et al was more particular about this reality and stresses to operate these cases within the 14 days after the first diagnosis[1]. Beside the early age elective surgery, duration of incarceration is an important factor of morbidity in of incarcerated inguinal hernia[17]. There is still paucity of information about the importance of these important factors. Still a little is available about the importance of duration in literature. The incidence of complications in other centers has been reduced significantly due to early age repair and start of early management after the onset of incarceration. The patients are brought earlier; manual reduction is always successful, preventing the further complications. According to a study, manual reduction is safe and effective when performed timely[18]. If duration after onset is prolonged, adhesive phenomena will not make it possible.

In our circumstances most of the patients brought late. The duration in our patients is shown in table-4. In this study the duration after onset till presentation looks to be longer. This longer duration plays its role in creating edema and ischemic changes in the trapped viscera and this may be the cause of high ratio of complications. As far as complications are concerned, the pediatric incarcerated hernia is always at high risk of complications i.e. intestinal, omental, testicular and ovarian infarction[19]. Among these, the testicular infarction is a well known complication[20]. Though one sided orchidectomy may not have any physiological effect, but the psychological impact remains on personality for a long time. In this study 5 (6.2%) patients developed testicular infarction, where orchidectomy had to be performed. Among these 3 patients were under the age of 6 months and 2 were above one year.

The ovarian strangulation is also well known complication of incarcerated inguinal hernia[21]. In 2(3.7%), oophorectomy was performed. Omentum is another content of incarcerated inguinal hernia to be necrosed. The diagnosis is usually established during surgery. In 7(8.7%) cases, partial omenectomy was done. Small intestinal is frequently trapped in incarcerated inguinal hernia and mostly found to be necrosed[22]. Among 22 complications mentioned in table-5 8 cases underwent for resection and anastomosis small intestine.

The rate of complication looks to be higher as compared to the other centres except the results of developing countries like Nigeria[23], Nepal[24], Iraq[25] and Iran[26], where the complication rate is near to our study.

In our circumstances, the high rate of incarceration and its complications are due to the delay in elective surgery and delayed start of management after the onset of incarceration. The paediatric surgery facilities are at long distance,

these patients are mostly managed by the no-concerned, having little knowledge about the consequences of incarceration. The parents are also not properly guided about the future aspects of complications. Those patients who even get access to the paediatric surgical units are not managed and guided according to their schedule. Among these waiting patients, a number of patients get incarceration before their appointments.

CONCLUSION

Timely electively surgery, early proceeding for management after the onset of incarceration, creating awareness and improving the health education facilities are the key points in decreasing the morbidity of paediatric incarcerated inguinal hernia.

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