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Original Research Article

Telephone survey of inguinal hernia repair patients older than 5 years for chronic pain

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ABSTRACT

Background: Little is known about chronic pain in the inguinal region following inguinal hernia repair in children. A study was conducted to examine whether pain is an important complication of inguinal hernia surgery in children.
Methods: A telephone survey was performed of former patients who had undergone inguinal hernia repair and are now older than 5 years. A questionnaire was prepared, and the questions were asked by paediatric surgeons.
Results: There were 66 former patients now older than 5 years old. Patients had inguinal hernia repair at between 11 days and 14 years of age (mean 3.24 years). Age during telephone survey was between 5 and 18 years (mean 7.48 years). One patient had late pain related to direct inguinal hernia occurrence (1.5%). Three patients described non-specific abdominal pain unrelated to the inguinal operation. None of the patients were taking painkillers.
Conclusions: Although this is a small sample group, chronic pain does not seem to be a serious problem after inguinal hernia repair in children.

Keywords: Child, Chronic pain, Inguinal hernia, Postoperative

INTRODUCTION

Inguinal hernia is one of the most frequent operations performed in childhood. Frequency of inguinal hernia is 0.8-4.4% in children. Presence of family history increases the frequency to 11.5%.[1] Classical postoperative complications of inguinal hernia in children are spermatic cord/testicle injuries, wound infection, postoperative hematoma, persistent hydrocele and recurrence.[1] There is not much information about postoperative chronic pain and its management.

Chronic pain after an inguinal region operation is usually due to nerve damage. Ilioinguinal and genitofemoral nerves are the two most important nerves that may be affected during an inguinal hernia operation. Both nerves will be in the operative area if external oblique fascia is opened (Ferguson or modified Ferguson repairs). If Mitchell-Banks technique is used and fascia is not opened, ilioinguinal nerve, genital branch of the genitofemoral nerve and sympathetic nerves (testicular plexus) will still be in the operative field, because these nerves are the components of the spermatic cord.

Inguinal surgery in children classically does not require mesh repair. During dissection, nerves may be lacerated, stretched, contused, and during fascia closure they may be compressed.[1-3]

Chronic pain after inguinal hernia repair in adults is a well-known problem and detailed information can be found in general surgery textbooks. On the other hand, studies about postoperative pain after inguinal surgery in children are limited and it is not listed as one of the

complications of inguinal hernia repair in most of the paediatric surgery textbooks.[2,3]

A study was conducted to find out the significance of chronic pain following inguinal hernia repair in children.

METHODS

A retrospective, cross-sectional, questionnaire-based study was conducted in a paediatric surgery department of a university. Children who had received inguinal hernia surgery in a tertiary care hospital between 2007-2012 and were now older than 5 years were chosen as the study group. Patients with additional anomalies such as connective tissue disorders, congenital heart defects, ventricular-peritoneal shunt were excluded from the study. Only the patients with inguinal hernia, hydrocele and undescended testicle with no other additional anomaly were included in the study. Initial information about the patients and the operation was retrieved from the hospital data.

Table 1: Telephone survey questions.

Name of the patient	No.
Date of birth	
Age at operation	
Age now	
Operation	
Left inguinal region	
Right inguinal region	
Bilateral inguinal regions	
Pain	
None	
Rare (less than one in a week)	
Frequent (few times in a week)	
At all times	
What is the pain intensity if graded from 0 to 10 (no pain to unbearable pain)	
Is there any specific physical activity that increases the intensity of pain? (walking, running, riding a bicycle, etc.)	
Is he/she experiencing pain in any other parts of the body? If any, where?	
Pain killer use for inguinal pain	
Yes	
No	
Pain killer use for any other reason	
Yes	
No	
Pain killer use	
None	
Sometimes	
Frequent	
Name of the pain killlers	

A telephone questionnaire was prepared. The questionnaire included the site/sites of the inguinal operation, reoperations or any other operations performed, presence of pain in the inguinal region(s), intensity of pain, association of pain with any physical activity, presence of pain in any other location, and painkiller use (Table 1).

Questions were asked by the paediatric surgeons. Patients reporting presence of pain were called for detailed examination. Data were analyzed using SPSS statistics program. For the categorical data were evaluated using descriptive statistic, and percentage, frequency distribution were calculated. For the numerical values, mean and standard deviation values were calculated.

RESULTS

Sixty six patients were older than 5 years at the time of the study (Table 2). There were 15 girls and 41 boys. Operative age was between 11 days and 14 years (mean 3.24 years). Twenty-seven patients (41%) were one year old or younger at the time of the first operation. Age now was between 5 and 18 years (mean 7.48years).

Table 2: Results of the telephone survey.

66 patients:
15 girls
41 boys
Operative age: 11 days- 14 years (mean 3.24 years)
Age now: 5-18 years (mean 7.48 years)
Operation side
30 left,
29 right,
11 bilateral,
4 asynchronous operations
Additional incisions
2 circumcisions,
2 undescended testicle
2 reoperations for recurrence
Pain
Pain in the inguinal site: 1
Non-specific abdominal pain: 3
No painkiller use

In total 79 operations were performed on 66 patients: 30 left inguinal hernias, 29 right inguinal hernias, 7 bilateral inguinal hernias (each counted as 2 operations), 2 circumcisions, 2 orchiopexies and 2 reoperations for recurrence.

Only one patient complained of pain in the operative area, which started 3 years after the operation. This patient was called for control and a 0.5 cm direct inguinal hernia including omentum was diagnosed using ultrasonography.

Three patients described non-specific abdominal pain. None of the patients were taking pain killers for any reason.

DISCUSSION

Chronic pain (pain lasting more than 3 months) after inguinal hernia repair in adults may be due to nerve entrapment, scar tissue or mesh adherence. It is well studied in adults and algorithms were prepared.[4,5] Mesh is not used in routine indirect inguinal hernia repair in children.

The ilioinguinal and genitofemoral nerves are the two most important nerves that may be affected during an inguinal hernia operation. Entrapment of the ilioinguinal nerve with sutures during fascia repair may result in pain in children.

A few reports surveying paediatric patients for chronic pain after open inguinal hernia repair concluded that pain is not an important problem after inguinal surgery in children.[2,6] Present study supports this finding. Only inguinal pain related to the surgical site was started three years after the operation and a small direct hernia was found. If there is chronic pain during childhood, it may continue in adulthood.[7]

One of the reasons of not diagnosing chronic pain may be that most of the paediatric inguinal hernia patients are non-verbal at the time of the inguinal hernia repair and cannot describe pain or hypoesthesia due to nerve damage or entrapment. Nerve regeneration is rapid in children; nerve repair may be completed in the same period in which the pain due to the operation slowly disappears.

Elective transection of ilioinguinal and genitofemoral nerves are performed by some general surgeons in order to prevent pain due to the entrapment of a nerve after mesh repair.[8] Nerves passing though the abdominal wall such as the ilioinguinal and hypogastric nerves are prone to injury in laparoscopic procedures due to trocar placement.

A study on cadavers concluded that if the trocar placement is below the level of the anterior iliac spine, there is a risk of injuring the ilioinguinal or hypogastric nerves.[9] Healing of the nerve with neuroma formation and subsequent pain is possible. There is no such information for infants and children. In our study none of the patients had laparoscopic hernia repair.

The consequences of nerve damage in the inguinal area other than pain and hypoesthesia are not extensively known in children. Soyer et al., studied the genitofemoral nerve (GFN) electrophysiologically in children that had undergone inguinal hernia repair.[10] They found that latency of the genitofemoral nerve was prolonged after inguinal hernia repair.

Shono et al, reported the results of 2 experiments, one in neonatal and the other in prepubertal rats.[11,12] Transection of the GFN resulted in testicular maldescent in the first group and testicular ascent in the second group. These findings suggest that the entrapment with a suture or fibrosis may not be the only causes of ascending testicle after inguinal hernia repair. Although our telephone survey did not reveal any operation for ascending testicle, it is a small series.

CONCLUSION

Although a small-scale study, our study revealed that chronic pain after inguinal hernia repair in children does not seem to be a problem. Specified research for chronic pain symptoms would be helpful to evaluate chronic pain in non-verbal children.

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