International Surgery Journal
Mankar K et al. Int Surg J. 2019 Apr;6(4):1301-1304
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20191266

Original Research Article

Study of contents of inguinal hernia in girls

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Received: 18 January 2019
Accepted: 28 February 2019

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ABSTRACT

Background: Inguinal hernia in females is relatively uncommon as compared to males. In female patients, the hernial sac contains one ovary in approximately 15–20% of cases, and some also contain a fallopian tube. This study was done to know the contents in inguinal hernia in girls.
Methods: A prospective study on eight girls with inguinal hernia presenting between January 2016 to December 2018, presented with swelling in inguinal region. Physical examination in all girls was done followed by ultrasonogram to know the content of inguinal hernia. All patients underwent surgical exploration.
Results: Among 8 girls with inguinal hernia, 2 (25%) girls had bilateral inguinal hernia, 4(50%) girls had right and 2 (25%) girls had left sided inguinal hernia. Ultrasonogram showed 2 girls with bilateral inguinal hernia had intestines as content on both sides. 3 girls had intestines, one (10%) girl had omentum and 2 (20%) girls had ovary as content of hernia sac. On surgical exploration one girl had omentum, one had ovary, two had intestine as hernial sac content. Two girls with irreducible hernia had omentum and ovary respectively as hernial content. In all girls after reduction of content, herniotomy was done.
Conclusions: Surgical repair should be done at diagnosis in all girls presenting with inguinal hernia in view of high incidence of incarceration of ovary and tubes. Sac must be opened and its contents examined before it is tied off and excised.

Keywords: Inguinal hernia, Hernial contents, Ultrasonogram, Surgical exploration

INTRODUCTION

Inguinal hernia in females is relatively uncommon as compared to males. The incidence of inguinal hernia in females is 1.9%, the ratio of boys to girls being 6:1.[1] The site of presentation being 68.1% on the right side, 23.4% on the left and 8.5% bilateral.[2]

In female patients, the hernial sac contains one ovary in approximately 15–20% of cases, and some also contain a fallopian tube.[3]

The anatomy of the round ligament in female infants and girls has been studied by Ando et al.[4] Their results revealed that the round ligament as was traditional thought did not end in the labia majora but midway in the inguinal canal. Internally it was attached to the mid portion of the fallopian tube or the ovary which leads to the conclusion that the ligament that runs along the hernia sac is best described as the suspensory ligament of ovary.[4,5]

It is supposed to be female gubernaculum that has altered anatomy and localization because of absence of androgen responsiveness. Its modified presentation in a processus vaginalis raises the suspicion that ovary in the hernia sac may not be simply prolapsed, but is a descended gonad mimicking the descent of the testis.[6]

Bilateral inguinal hernias are rare in female infants. Incidence of complete androgen insensibility syndrome (CAIS) in these patients is 1–2%. The typical clinical presentation is either primary amenorrhoea in adolescence or inguinal swellings (later confirmed as testis) in a phenotypic female infant.[7,8] Complete androgen insensibility syndrome (CAIS) is considered in phenotypic female children with bilateral inguinal hernia or in girls presenting with an inguinal gonad, even if unilaterally.[9]

The history and physical examination are usually sufficient to make the diagnosis. The sensitivity and specificity of the physical examination were 75% and 96%, respectively.[10]

The clinical use of ultrasonography has shown promise in these situations.[11,12] The sensitivity of ultrasonography for the detection of groin hernias is greater than 90%, and the specificity is 82% to 86%.[11-13]

Repair of inguinal hernia in females should be carried out at the earliest after a diagnosis is made, because incarceration occurs more frequently in childrens.[14,15]

METHODS

A prospective study on eight girls presented with inguinal hernia in pediatric surgery unit in our Hospital over the period of 3 years between January 2016 to December 2018. All girls between 1 yr. to 15 yr. of age, presented with swelling in inguinal region and underwent surgery were included in the study.

Girls more than 15 years, or not done ultrasound or refused surgery were excluded from the study.

Physical examination in all girls was done followed by ultrasonogram to know the content of inguinal hernia (Figure 1). Karyotype study was done in two girls with bilateral inguinal hernia and in two girls with gonads as hernial content on ultrasonogram and phenothypicallly were females.

Figure 1: Bilateral inguinal swelling.

Two girls were present with irreducible inguinal swelling.

All patient underwent surgical exploration. After inguinal exploration, hernial sac was identified; hernial sac was opened first to look for the contents. During surgical exploration we avoided manual reduction of hernia content before opening the hernial sac. Once contents were identified, contents were reduced manually and hernial sac was dissected up to the deep ring. it was then transfixed, ligated and divided at deep ring and rest of the sac was removed. Wound was closed in layers without drain. All girls had an uneventful postoperative period.

Statistical analysis was performed using SPSS, version 18.0 software.

RESULTS

During the study period 8 girls with inguinal hernia fulfilling inclusion criteria were included, all girls had age between 1 to 15 years with mean age of 5±4 years. 2 (25%) girls had Bilateral inguinal hernia, 4 (50%) girls had right and 2 (25%) girls had left sided inguinal hernia. 2 (25%) girls were present with irreducible inguinal hernia, none of our patients had obstructed or incarcerated hernia.

Figure 2: Ultrasonogram showing hernial contents in sac.

Ultrasonogram (Figure 2) done in all girls showed 2 girls with bilateral inguinal hernia had intestines as content on both sides. 3 girls had intestines, one (10%) girl had omentum and 2 (20%) girls had ovary as content of hernia sac (Table 1).

Both girls with ovarian content on ultrasonogram had right sided inguinal hernia (Table 1).

On Surgical exploration (Figure 3) we found one girl had omentum, one had ovary, two had intestine as hernial sac content. Contents were reduced after anaesthesia in two girls with bilateral hernial and in other 2 girls with unilateral hernia (Table 1).

Two girls with irreducible hernia had omentum and ovary respectively as hernial content.

In all girls, after reduction of the contents, herniotomy was done and had an uneventful postoperative period.

Table 1: Hernial content on ultrasonogram and on surgical exploration.

Female inguinal hernial contents	Ovary	Omentum	Intestines	Reduced
Ultrasonogram	2	1	3 + 2 (bilateral)	-
Surgical exploration	1	1	2	2 + 2 (bilateral)

Figure 3: Hernial sac dissected up to deep ring.

DISCUSSION

The female inguinal canal structurally is similar to that in male with the exception of its contents. In females the round ligament replaces the cord. The round ligament is anatomically an important support of the uterus.[4,16]

A wide range of contents can surprise the surgeon at the time of surgery. Sliding inguinal hernia containing the ovary is a complex lesion necessitating a careful and meticulous dissection with least trauma to the ovaries.[17] A part of the uterus, fallopian tube and ovaries can also find its way in to the hernia sac.[18,19] Therefore the hernia sac in a female is unpredictable truth of which is known only after exploration.. In our study one girl had omentum, one had ovary, two had intestine as hernial sac content.

Awareness of female inguinal anatomy is essential before embarking on any surgical intervention for inguinal hernia. The possibility of a sliding inguinal hernia with uterus, fallopian tube and ovaries should be considered. Open surgical approach is undoubtedly a safe approach in such patents. However laparoscopic approach is also helpful especially in cases where in the clinical diagnosis is ambiguous.[20]

The sac should be opened in a normal appearing portion, and the walls inspected for a sliding component. The mesenteric attachment of the inner sac wall is divided in the bloodless plane within the sac. The freed up tube and ovary is then reduced easily with no compromise to the blood supply and the neck of the sac is closed in the usual way.[14]

Laparoscopy appears to be beneficial in bilateral hernia of girls, giant hernia, recurrence following failed open repair and in hernia associated with undescended testis or ambiguous genitalia. On the other hand, open herniotomy appears to be advantageous in male inguinal hernia, unilateral female hernia, premature newborns, failed laparoscopic repair and in hernia associated with serious co-morbidity.[21] In our study we had done open Herniotomy in all cases.

Inguinal hernias may contain the intestines, omentum, testes, ovaries, and fallopian tubes.[22] These structures may incarcerate. It has been reported that the most important complication of inguinal hernias in the pediatric age group is incarceration, which was found in a study to have a frequency of 31%.[23] The ovaries come first among the structures that incarcerate in the inguinal hernia sac. In a series of 1000 inguinal hernia cases, ovarian incarceration was reported to be present in 43% of the cases.[24] In another study done by Boley et al it was reported that all of the 15 cases in the series had inguinal hernia sacs that contained irreducible ovaries and that none of the sacs contained intestinal ingredients.[25] In our study two girls with irreducible hernia had omentum and ovary respectively as hernial content, but content were viable during surgical exploration.

CONCLUSION

Surgical repair should be done at diagnosis in all girls presenting with inguinal hernia in view of high incidence of incarceration of ovary and tubes. Sac must be opened and its contents examined before it is tied off and excised.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Mankar K, Shinde N, Moinuddin M, Ahmed A. Study of contents of inguinal hernia in girls. Int Surg J 2019;6:1301-4.