

Case Report

Needlescopic Reduction and Inversion Snaring of Hernia Sac for the Treatment of Ovarian Hernia; A Case Report

Rafik Shalaby^{1*}, Soliman Mohamad¹, Mohamed Ahmed Negm², Hanaa El-Ebesy³

¹Department of Pediatric Surgery, Al-Azhar University, Cairo, Egypt

²Pediatric Surgery Unit, Qena University Hospital, South Valley University, Qena, Egypt

³Obstetrics and Gynecology Departments, Al-Azhar University, Cairo, Egypt

*Address for Correspondence: Rafik Shalaby, Department of Pediatric Surgery, Al-Azhar University, Cairo, Egypt. E mail: rafikshalaby40@gmail.com

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ABSTRACT

Inguinal hernia repair is one of the most frequently performed operative procedures in paediatric surgery. Several laparoscopic techniques have been described. Ovarian hernia is defined as the ovarian herniation into the inguinal hernia sac.

This case report described a case of ovarian hernia in a 6-months girl. The hernia sac contents were reduced, and the sac was closed by a new technique of inversion and snaring of hernial sac. In this technique the sac was grasped, inverted then snared using "Acusnare polypectomy snare". This technique is simple, reproducible and can be performed quickly.

Keywords: Ovarian Hernia, Needlescopy, Incarcerated Inguinal Hernia in Girl

Introduction

In girls, the incidence of inguinal hernia is more than four times lower than in boys, however the incidence of bilateral inguinal hernias is almost twice as high as in boys (25.4% vs 12.9%) [1]. Sliding indirect inguinal hernias containing the ovary and Fallopian tube is not uncommon in younger girls. Reproductive organs (most commonly ovary) are content of the hernia sac in girls in 15–31% [2].

Although an irreducible ovary is not at great risk of incarceration, this condition may become a significant risk factor for torsion or strangulation [2-4].

Ovarian hernia is defined as herniation of the ovary into the inguinal hernia sac. It is reported that 15%-20% of all canal of Nuck hernias containing ovaries and on some occasion with its Fallopian tube [5]. In these cases, ovarian torsions have been reported in 2%–33%, emphasizing the importance of early surgical repair in irreducible hernias, even in asymptomatic patients.

Gaspar et al. [6] defined sliding hernia as "Sliding hernias are those in which part of the wall of the sac is formed by a viscus." Cases of ovarian hernia in which the ovary can easily be reduced are not included in the definition of "ovarian sliding hernia."

Herein we describe a case of incarcerated ovarian hernia that was managed for the first time by applying a new technique which is "needlescopic reduction of incarcerated ovary and tubes with inversion and snaring of the hernia sac".

Case Report

A 6-month old girl presented to out-patient clinic with left inguinal swelling. The mother reported that she noticed a swelling in the left groin area since birth which appears on crying and disappears on sleeping. But recently she noticed that the swelling is present all the time and does not disappear. On clinical examination the girl was generally well-nourished and calm without any history of vomiting or absolute constipation. There was a left inguinal hernia with palpable ovary which was irreducible.

Blood counts and biochemical values were within normal limits. Inguinoscrotal U/S suggested left congenital hernia with the possibility of incarcerated ovary and Fallopian tube. After assigned detailed informed consent by the parents, the case was scheduled for needlescopic hernia repair. Intra-operatively there was left ovarian hernia where both ovary and Fallopian tube was incarcerated into the hernial sac. For the first time, 2 Suture grasper device 1.4-Gauge were used for reduction the hernia content and inversion and snaring the hernia sac safely.

Operative Technique:

Under general anaesthesia with Trendelenburg's position, insertion of the main umbilical port was accomplished by the open method. Pneumoperitoneum was established to a pressure of 8 mm Hg. and a 5-mm 30° telescope was inserted in the umbilical port. Two suture grasper devices (SGDS), for working instruments, were inserted at the midclavicular line at the level of the umbilicus.

Needlescopic reduction of both ovary and Fallopian's tube was done then the hernia sac inversion was done as described by **Shalaby and Negm** [7] with some modification in the form of using 2 suture grasper devices and Acusnare polypectomy snare [Cook Medical, Wilson-cook Medical, Inc.4900 Bethania Road Winston-Salem NC27105.WWW.cookmedical.com]” and 2 Suture Grasper Devices.

The snare was introduced into the ovary and its Fallopian tube was gently reduced by alternate traction movement by the two SGDS on the round ligament (Figure 1). The abdominal cavity at the site of right suture grasper device. The ipsilateral SGD was passed into the opened loop of the Snare and the hernia sac was re-grasped again and twisted (**Figure 2**). So, the inverted, twisted hernia sac was snared and cauterized slowly with low monopolar cutting diathermy at the neck of the hernia sac in interrupted manner Figure 2. The twisted snared distal sac was extracted, through the umbilical port with the aid of SGDS and peritoneal defect was closed with polypropylene suture.



Figure 2: Inversion and snaring of the hernia sac
A) inversion of the sac by SGD
B) Application of the snare
C) Closure of the snare to encircle the sac at its neck.

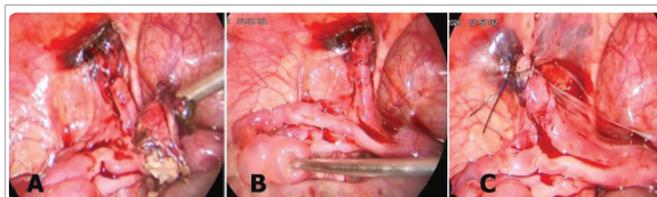


Figure 3: Separation and peritoneal closure
A)The sac now separated after application of low current cutting mode diathermy
B) The peritoneal defect
C) Peritoneal closure and the end of surgery.

(**Figure 3**). <https://drive.google.com/open?id=1Ay9VBKYJM0SJPm9sekzvJgfCOC9LBxtM>. Recovery was quick and uneventful and patient was discharged in the evening of the same day.

Discussion

It is reported that the ovary is herniated in 15%–20% of female patients with inguinal hernia. [5]. Ovarian hernia is more frequently seen in infants than in older girls and early or emergency surgical repair is female recommended because of the risk of ovarian torsion. Our case presented with ovarian hernia in a 6-month girl and the incidence coincides with others [8,9].

Laparoscopy for inguinal hernia was firstly done in girls by **El-Gohary in 1997** [10], since then, many laparoscopic techniques for inguinal hernia repair was developed aiming for achieving the advantage of minimal invasive surgery and decreasing the rate of recurrence [10-12]. This operation initially carried out in female because it is safer than males due to absence of vas and testicular vessels [10] **Takehara et al.** reported on laparoscopic percutaneous extraperitoneal closure (LPEC) that is now widely applied in inguinal hernia repair in Japan.

They also recommended the performance of LPEC in the treatment of female children with ovarian hernia because the hernia orifice can be closed in a safe and effective manner [12]. However, **Ishii et al.** reported that simple LPEC for ovarian hernia was associated with a risk of recurrence when sliding of the fallopian tube was present because it led to low ligation and concluded that an additional procedure or conversion to an inguinal approach should be recommended [11].

Over the past years, laparoscopic hernia repair became a well-established technique for inguinal hernia in children with good cosmetic outcome. It allows diagnosis of contralateral hernia can be achieved and simultaneous repair [7,13-15]. Recently, there are many other techniques available for application of laparoscope in inguinal

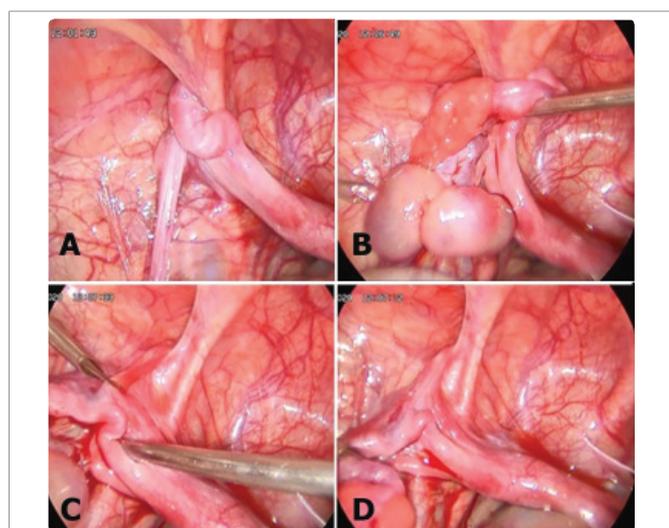


Figure 1: Incarcerated ovary and Fallopian tube in a left sided inguinal hernia
A) The ovary and its Fallopian tube seen incarcerated inside the canal of Nuck
B) Reduction of the ovary and appearance of fimbrian end of the tube
C) Complete reduction by the SGD
D) Appearance of short round ligament

hernia repair especially in girls as inversion ligation, inversion with cauterization and percutaneous ligation [16-18].

In the present case report, the snare was attached to low cutting diathermy to decrease spread of heat to surrounding structure. We proposed that inversion encirclement and snaring of the hernia sac will result in herniotomy with narrow raw area at its neck without much diathermy to surrounding structure.

According to our experience, the advantages of inversion, snaring and peritoneal closure technique are short operative time and adequately remove the whole sac in one mass with no remaining peritoneal bridge that may be the cause of recurrence.

We agreed with other authors that girls are good candidate for new innovative laparoscopic techniques because there is no vas, and vessels passing through the internal inguinal ring. In addition, the majority of young laparoscopic surgeon and resident usually start their training curve with inguinal hernia repair in girls [19,20].

Conclusion

The technique of needlescopic inversion, encirclement, and snaring of the hernia sac with peritoneal defect closure is reproducible, easy, and promising method for the treatment of inguinal hernia in girls. It resulted in marked reduction of operative time without recurrence.

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