Case Report

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Incarcerated Inguinal Hernia with Ovarian Torsion in a Neonate: An Acute Emergency

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Abstract

Inguinal hernias in the newborn age group are rarely encountered. In the affected female patient, the ovaries, fallopian tubes, and the intestines may be seen in the hernia sac. The early diagnosis of torsion in cases in which the ovary is herniated into the inguinal canal is of utmost importance in order to give surgery the chance of reduction and correction. In this paper, a case of an ovarian herniation into the inguinal canal with the presence of torsion and incarceration is being presented.

Keywords: Female Inguinal Hernia; Newborn; Ovary; Torsion.

Introduction

Indirect inguinal hernia is the most common congenital anomaly in the pediatric age group. But newborn inguinal hernias are encountered with a frequency of 1-2%, and the female / male ratio ranges between 1:4 and 1:10 [1]. About 15-20% of hernias in infant girls contain ovary, sometimes with a fallopian tube [2, 3]. Despite the possibility of a spontaneous regression in some cases [4], the presence of ovaries and / or intestinal structures in the inguinal sac decreases the chance of regression, while also increasing the chance of incarceration [5-7]. The normal anatomy is altered when an ovary is trapped in a hernia sac, and these changes make torsion more likely. Ovarian ischemia may arise in case the pedicle of the herniated ovary rotates around itself. An irreducible ovary is at significant risk of torsion causing vascular compromise. Because of this reason, an early diagnosis of the situation is crucial in order to salvage the ovary before an irreversible damage happens. This risk warrants treating the asymptomatic irreducible ovary as any other incarcerated hernia as a true emergency [6]. In this paper, a case of an ovarian herniation into the inguinal canal with the presence of torsion and incarceration is being presented.

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Case Report

A 25-day-old neonate with a left-sided, painful inguinal swelling for the last 2 days was brought to the emergency department. The baby was anxious and she was in a steady state of intense crying. At physical examination, a tender mass was palpated in the left inguinal region, just above the labium majus. After physical examination and radiological evaluation (ultrasonography), the diagnosis of incarcerated inguinal hernia of the ovary was made. At color Doppler ultrasonography, vascular signals were not obtained from the ovarian tissue, thus indicating nonviability, and leading to a consideration of ovarian torsion. Because of the long-standing history and color Dopplor findings, she was taken to the operation room without an attempt for manual reduction. Intraoperatively, the torsion of the ovary with distal fallopian tube (Fig. 1) within the indirect hernia sac was seen. Detorsion of pedicle of the ovary was done. Despite the ovary being judged intraoperatively as moderately to severely ischemic even after detorsion (Fig. 2), oophorectomy was not

done. Hernia repair was performed after reducing ovary through internal ring to the pelvis. Follow-up color Doppler sonogram after 1 month showed normal ovary.

Fig. 1: Intraoperative photograph showing torsion of the ovary with distal fallopian tube within the indirect hernia sac

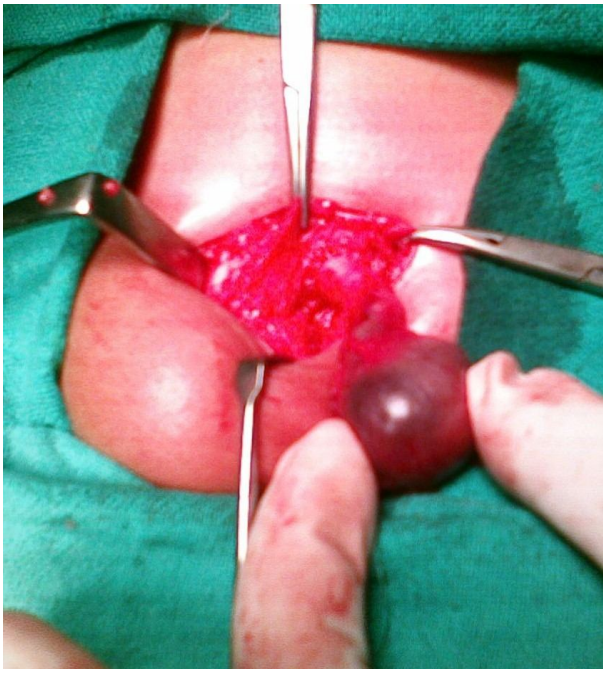
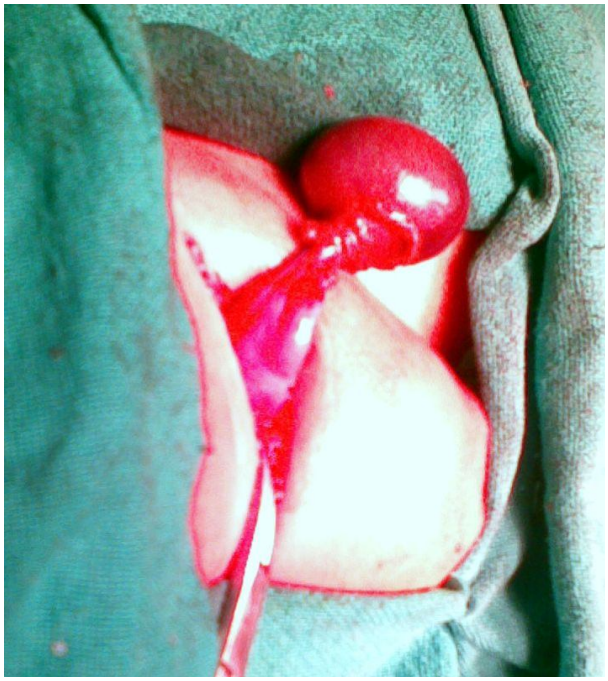


Fig. 2: No change in the color of the ovary after untwisting



Discussion

In the female, the counterpart structure of the processus vaginalis which extends into the inguinal canal is known as the Nuck diverticulum [8]. The persistence of this peritoneal opening is defined as the Nuck cyst [9]. This peritoneal sac usually gets obliterated by the 8th gestational month [10]. Anomalies in the nonobliterated canal may lead to the development of inguinal hernias [9]. In prematurity situations, the delivery is accomplished before the closure of this canal, thus increasing the risk of the development of an inguinal hernia [8]. In addition, it has been reported that the risks of herniation and torsion are increased in cases in which the fallopian tubes are rather long and thus the ovaries more mobile [11].

Inguinal hernias may contain the intestines, omentum, testes, ovaries, and fallopian tubes. 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% [12]. In another study it was found that the majority of the painful inguinal swellings in the infancy are related to incarcerated hernia [13]. Incarcerated ovary in hernia sac has the risk of torsion and strangulation. 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 [14]. In a study by Merriman et al, in all cases of ovarian torsion within an inguinal hernial sac the primary aetiological event was torsion of the ovary and tube on its pedicle whilst suspended from the neck of the hernial sac [15]. The possibility of sustaining ovarian damage as a consequence of an inguinal hernia becoming strangulated is secondary to compression of ovarian vessels by an entrapped bowel loop. 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 non-reducible ovaries and that none of the sacs contained intestinal ingredients [6].

Once an ovary was noted in a female hernia sac on examination, repair was suggested soon thereafter to avoid incarceration, possible torsion, and strangulation, and if strangulation was found, regardless of its questioned viability, neither was it removed nor should it be removed [6,16,17]. The treatment option varies from manual reduction to surgical intervention, depending on the duration from beginning of swelling to the time the exact diagnosis was made. Even though the presence of

short-term history and the lack of peritoneal irritation findings which are indications for a manual reduction, the suspicion of an ovarian torsion should be raised for ovaries within the incarcerated inguinal hernia, and ovarian viability should be considered before an attempt of manual reduction. Most pediatric surgeons perform oophorectomy in girls presenting with ovarian torsion in which the ovary appears necrotic. However, the adult gynecology literature suggests that many ovaries can be treated by detorsion alone. Simple detorsion was not accompanied by an increase in morbidity, and patients had functioning ovarian tissue on follow-up despite the surgeon's assessment of the degree of ovarian ischemia [16]. Detorsion is the procedure of choice for most cases of ovarian torsion in children.

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