

Atypical Contents of Inguinal Hernial Sac: A Surgical Dilemma

Dr Sunder Goyal*, Dr Madhuri Shrivastva**, Dr K.K.Sinha*, Dr Snigdha Goyal***

*Professor of Surgery, ** Assistant Professor of Gynae & Obst., *** Senior Resident, Department of Pathology
MM Institute of Medical Sciences and Research, Mullana, Ambala, India

Abstracts: Unusual contents in inguinal hernial sac are uncommon. Appendix, ovary or urinary bladder is more frequent than other abdominal organs. To deal with an unexpected organ during surgery is a surgical dilemma. We present two cases of appendix (Amyand's Hernia) and third one with ovary in inguinal sac. [Goyal S et al NJIRM 2012; 3(5) : 137-140]

Key words: Inguinal hernia, Amyand's Hernia, Appendix, Ovary

Author for correspondence: Dr. Sunder Goyal, Department of Surgery, MM Institute of Medical Sciences and Research, Mullana, Ambala, India, Email: drslgoyal@yahoo.in

Introduction: Inguinal hernia repair is most frequent surgery done by a surgeon. However, presence of unusual organs in inguinal hernial sac could create a tricky situation for operating surgeon.^{1,2}The often encountered unusual contents are appendix, ovary, fallopian tubes and urinary bladder.^{1,2}We present here, the surgical dilemma faced by surgeon while operating on unexpected and unusual contents of hernial sac with related review of literature.

Cases with Appendix in Sac : 1st Case-A 55-year-old-male presented with pain and mass in a right groin. Patient was diagnosed as a case of obstructed hernia. All laboratory data were within normal limits except Total leukocyte count which was on higher side. Patient was operated as an emergency case. An inflamed appendix was found as content of the indirect hernia sac (Fig-1). The distal end of the appendix was adherent to the wall of sac. Appendectomy was performed and herniorraphy was done with Bassini's method. Postoperative period was uneventful and he was discharged on the 5th day. He was followed up at our OPD for stitches removal. Pathology revealed an acute appendicitis.

2nd Case-A 35 years male presented with inguinoscrotal swelling and was diagnosed as a case of indirect inguinal hernia. All blood investigations were within normal range. Patient was operated through conventional oblique incision. To our great surprise, there was appendix in hernial sac as its contents and it was not inflamed (Fig-2). Appendix was replaced back in abdomen and herniorraphy was done with prolene mesh. Postoperative period was uneventful and

patient was discharged on 5th day. He was followed up at OPD for sutures removal.

Fig-1 showing inflamed appendix in hernial sac



Fig-2 showing normal appendix in hernial sac



3rd Case with Ovary as Content: A 8months old girl was admitted in emergency ward with an acute left groin swelling that increased in size with the child cry. On examination, there was a 2 cm x 1.5 cm firm irreducible and tender swelling in the left inguinal region. The rest of the abdomen was

normal, leading to a diagnosis of irreducible left inguinal hernia. Ultrasound of left groin demonstrated a 2.5 cm x 2.0 cm x 2.0 cm solid oval structure. Overall features suggested of twisted ovarian. Emergency surgery was done. The sac consisted of congested and bulky ovary along with congested and swollen fallopian tube (Fig-3). In spite of oedematous and congestion, the bulky ovary appeared viable and therefore was reduced back into the abdomen. Hernia repair was done and postoperative period was uneventful.

Fig-3 showing oedematous bulky ovary with congested fallopian tube in case 3



Fig-4 showing ovary and fallopian tube in Right canal of Nuck upto Labia



4th Case with Ovary and Fallopian Tube : A 3 years old girl was admitted in emergency ward with a painful right groin swelling that increased in size with the child cry. On examination, there was a 3

cm x 1.5 cm firm reducible and tender swelling in the right inguinal region (Fig-4). The rest of the abdomen was normal, leading to a diagnosis of reducible right inguinal hernia. Ultrasound of right groin demonstrated a 3 cm x 2.5 cm x 2.0 cm solid oval structure. Overall features suggested presence of right ovary with fallopian tube. Surgery was done. The sac consisted of bulky ovary along with congested fallopian tube. The bulky ovary appeared viable and therefore was reduced back into the abdomen. Hernia repair was done and postoperative period was uneventful.

Discussion: Inguinal hernia is a regularly done surgical procedure which may sometime amaze the surgeon with its bizarre contents.^{1,2} This may create problems in management due to its surprising constituent. Almost all intra abdominal contents including stomach and acute conditions like perforated diverticular abscess have been described to trek into the inguinal canal.³ Reducibility of the swelling into peritoneal cavity is a confirmatory test of inguinal hernia whereas irreducible inguinal swelling cause a diagnostic dilemma for surgeon. Most of the time ultrasonography confirms the diagnosis. For better anatomical demarcation of its content computed tomography (CT) scan or magnetic resonance imaging (MRI) can be done.

The presence of a normal vermiform appendix in an inguinal hernia sac is uncommon with a reported incidence of 0.6% to 1%.^{4,5} They are usually on the right side and often seen in males. They are exceptionally on left side due to situs inversus.^{6,7,8,9} It has generally been associated with large indirect inguinoscrotal hernias, but occasionally direct hernias may also contain them.^{1,4} Acute appendicitis within an inguinal hernia accounts for 0.1% of all cases¹.

The pathophysiology is strange. When the appendix enters the sac it becomes susceptible to trauma and can get inflamed. 10 Other explanation is that due to contraction of abdominal muscles, there is sudden increase in intra-abdominal pressure causing compression of the appendix, which may promote inflammation and bacterial

growth.¹¹ Mobile caecum may be a predisposing factor for developing Amyand's hernia.¹²

The most common presentation is irreducible painful hernia (83%). Most common differential diagnoses are strangulated hernia and incarcerated omentum.¹³

If appendix is inflamed, then appendectomy is mandatory and the hernial repair should be performed with Bassini or Shouldice techniques, without making use of synthetic meshes because it may get infected.¹⁴ Usually in patients with small to moderate size hernia, appendectomy can be done with herniorrhaphy, but in case of large size hernias which are more likely to recur, may be repaired with mesh under antibiotic cover. If there is associated intra-abdominal abscess, it can be treated with either percutaneous aspiration (ultrasound guided) or by open drainage.¹⁵ Laparoscopic reduction of Amyand's hernia has been described in literature.

Whether to remove or leave behind a non-inflamed appendix is confusing. Patient's age, size of appendix, life expectancy and life-long risk of developing acute appendicitis decides about decision of appendectomy. As younger patients have a higher risk of developing acute appendicitis so, appendectomy may be considered where as in elderly individuals appendix may be left intact. Even in the younger patients, hernioplasty is done along with appendectomy if hernia is large size. This is done to reduce the incidence of recurrence. Appendectomy for the normal appendix in the sac will definitely increase the risk of infection to an otherwise clean surgery and increase the incidence of recurrence. And also surgical handling to reach the base of appendix may weaken the muscles and thus increases the possibility of recurrence, so, ideally hernioplasty should be done after replacing the appendix. Those in favor of appendectomy however, feel that the partly traumatized appendix, due to its handling is better dealt with by an appendectomy, with maximum care taken to prevent contamination.

In female infants, bowel loops and ovary are the most frequent contents of sac.¹⁶ Tubal and ovarian herniation in an inguinal hernia may be found in adult and perimenopausal women, though the incidence is reported to be more common in children.¹⁷ The reported incidence of its occurrence is 71% in children under five years¹⁸ and 30% in adolescents or women in reproductive age group¹⁸ and 2.9% exclusively in adults.¹ Embryogenic derangements are associated with this condition. During embryogenesis the gubernaculum and broad ligaments suspend the ovary and prevent its descent through the canal of Nuck (process vaginalis peritonei) to the base of the labium major.² The canal of Nuck is obliterated by the 8th week of fetal life and the ovary is then suspended between the cornu of the uterus and the internal ring. If it remains unobliterated, the ovary and the fallopian tube may trek through the canal. When ovary and fallopian tube form the contents of the inguinal hernia sac, they are often associated with anomalies in the development of the genital tract such as vaginal atresia, bicornuate uterus and renal anomalies.^{1,2,18,19} If there is no ovarian or tubal abnormality, the blood supply is intact and no sign of salpingitis, contents of hernial sac should be reduced.^{1,2} Reduction of the content is followed by high ligation of the hernia sac, closure of internal ring and re-enforcement of the posterior wall with a mesh in patients older than 20 years of age.^{1,2,18} The ovarian cyst rarely present as an inguinolabial swelling.²⁰

Conclusions: Unusual contents of inguinal hernia sac are rare, but surgeons still come across such eventualities. Organs found in the hernia sac should be protected to assure a normal postoperative period. Atypical contents may pose a surgical dilemma even to an experienced surgeon. Being aware of this option, along with the appropriate management, would assure better result in these patients.

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