—Case Reports—

Cysts of the Round Ligament Simulating Inguinal Hernia: Report of a Case

Barış Saylam[1], Mehmet Onur Gülseren[1], Özge Han[2], Bülent Çomçalı[1], Veli Vural[1] and Faruk Coşkun[3]

[1]Department of General Surgery, Ankara Numune Teaching and Research Hospital
[2]Department of Pathology, Ankara Numune Teaching and Research Hospital
[3]Department of Surgery, Hittite University

Abstract

We report on a 49-year-old woman with cysts of the round ligament causing a nonreducible mass of the groin. Cysts of the round ligament are rare. Physical findings were similar to those of an inguinal hernia. Such cysts are usually not considered in the differential diagnosis of groin hernias and might be identified only at the time of herniorraphy.
(J Nippon Med Sch 2013; 80: 296–299)

Key words: inguinal hernia, round ligament, cysts

Introduction

Cysts of the mesothelial investment of the round ligament are rare. They are associated with, and misdiagnosed as, inguinal hernias. The differential diagnosis for an inguinal mass in women includes hernia, enlarged lymph nodes, parasitic infection, extraperitoneal endometriosis, ganglion cyst, and benign and malignant soft-tissue tumors. Sonography is the modality of choice in patients presenting with a palpable mass in the inguinal region. We report a case of round-ligament cyst presenting as a symptomatic inguinal hernia.

Case Report

A healthy 49-year-old woman presented with progressive pain associated with a mass that had suddenly appeared in the right groin. Physical examination showed a firm, tender, irreducible mass in the right groin with a diameter of 3 cm. There were no symptoms of intestinal obstruction, and the patient was afebrile. Sonography of the inguinal region showed a fusiform hypoechoic mass. No appreciable peristalsis was seen, and the mass did not change with the Valsalva maneuver. The preoperative diagnosis was inguinal hernia. At operation, numerous fluid-filled cysts were attached to the round ligament, and an indirect inguinal hernial sac was noted on the medial aspect of the round ligament. The round ligament was clamped, ligated, and excised with the cystic mass, which was freed with blunt and sharp dissection. The hernial sac was excised, and the adjacent hernia was repaired.

Macroscopic examination of the surgical specimen showed a 11 × 3 × 1.5-cm off-white, brown, soft mass

Correspondence to Faruk Coşkun, Numune Teaching and Research Hospital, Talatpasa Avenue, No: 5, 06100, Altındağ/Ankara, Turkey
E-mail: farukcoskun@mynet.com
Journal Website (http://www.nms.ac.jp/jnms/)



Fig. 1 Macroscopic view of the round ligament

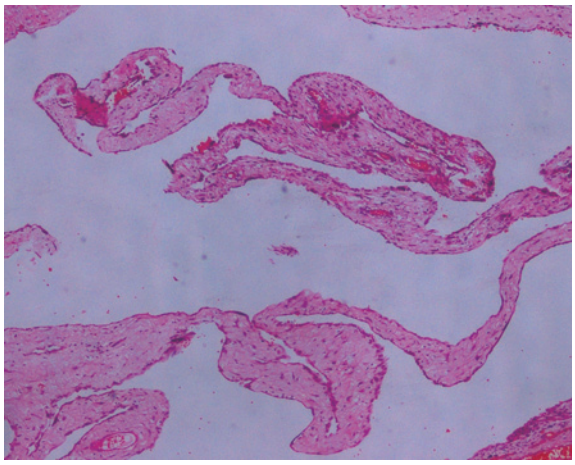


Fig. 2 Multiloculer cystic lesion HE × 40

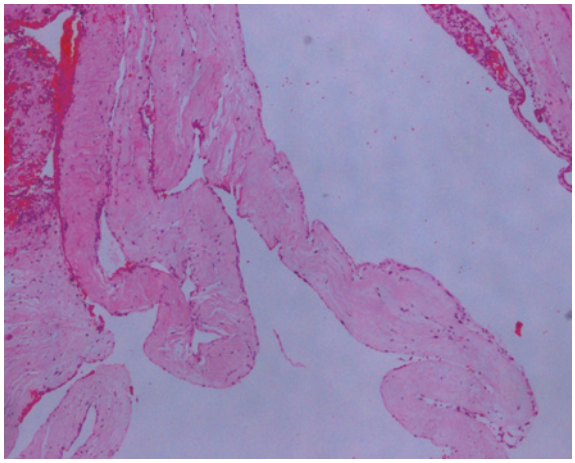


Fig. 3 The cyst lining flattened mesothelial cells HE × 100

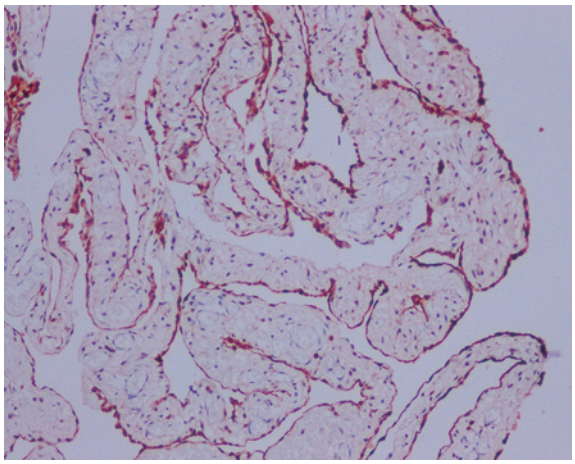


Fig. 4 Mesothelial cells with staining calretinin × 40

with a smooth surface (**Fig. 1**). On serial section, multiple cystic spaces were detected, the largest of which was 0.6 cm in diameter. These cysts contained serous fluid. Histologic examination revealed that the multiple small cysts were lined by flattened or cuboidal mesothelial cells (**Fig. 2, 3**). Immunohistochemical staining of the the mesothelial cells was positive for epithelial membrane antigen and calretinin (**Fig. 4**). The lesion was diagnosed as a peritoneal inclusion cyst. The postoperative course was uneventful, as resection of the round ligament had produced complete symptomatic relief. The patient has been followed up for 2 years without recurrence.

Discussion

The round ligament of the uterus, also known as the ligamentum teres uteri, originates at both uterine horns. It leaves the pelvis via the deep inguinal ring, passes through the inguinal canal, and continues to the labium majum. The round ligament is composed mainly of nonstriated or smooth muscle fibers looped together in bundles separated by fibrous tissue septa and containing blood vessels and nerve fibers within a mesothelial investment[1]. Cysts of the mesothelial investment of the round ligament have thin walls containing smooth muscle and capillaries and are lined with a single layer of flattened, cuboidal cells that have the characteristic appearrance of mesothelial cells[1]. Cysts may present

at any point along the round ligament[2]. Two theories have been suggested for the development of round-ligament cysts[3]. One theory involves a flawed obliteration of Nuck's canal. In males, a comparable flaw in obliteration may result in a cystic hydrocele or a hydrocele of the spermatic cord. According to this theory, a round-ligament cyst is the same disease as a cyst of the Nuck's canal[3–5]. Another theory involves the inclusion of embryonic mesenchymal mesothelial elements or remnants during the development of the round ligament.

Mesothelial cysts of the round ligament are rare. However, the actual incidence of this condition may be much greater than that reflected in the literature. Gonadotropin stimulation might cause previously unrecognized cysts to simulate an incarcerated inguinal hernia[6]. However, our patients denied gonadotropin stimulation. Round-ligament lesions are frequently misdiagnosed as more common pathologic conditions, such as inguinal hernia, femoral hernia, lipoma, and hydrocele of Nuck's canal (Nuck's canal cyst).

Round-ligament cyst and Nuck's canal cysts ultimately show the same imaging and histologic features. However, some of the symptoms and physical examination and pathologic findings should be considered in the differential diagnosis. A Nuck's canal cyst typically presents as a painless swelling; in contrast, a round-ligament cyst may be more painful[1]. Nuck's canal cysts are more common in children, but round-ligament cysts are more common in middle-aged women[7]. A Nuck's canal hydrocele usually presents as a unilocular cyst[5]; in contrast, a round-ligament cyst is usually multicystic[1], as in the present case. On ultrasonography, a Nuck's canal cyst is a comma-shaped lesion with its tail directed toward the inguinal canal and a cyst-within-a-cyst appearance, in which the fluid-filled canal collapses during the Valsalva maneuver while the cyst comes closer to the abdominal cavity; these features differed from those of the present case[8]. Eighty-two percent of round-ligament cysts are found on the right side[1]. However, the majority of Nuck's canal cysts are on the left side[9]. Hydroceles are located along the line of the round ligament and can even extend beyond the subcutaneous inguinal ring toward the vulva[9]. In the present case, cysts involving the round ligament were limited to the inguinal canal.

Summary

Cysts of the mesothelial investment of the round ligament are rare and occur in women in their late third or fourth decades and should be included in the differential diagnosis of groin masses in women. Differentiation of these cysts from small indirect inguinal hernias, with which they are frequently associated, is difficult and might be made only at the time of operation. They are less likely to be symptomatic than inguinal hernias. Symptomatic cysts of the round ligament should be excised, and the inguinal canal should be explored for possible inguinal hernias. Popular laparoscopic and open preperitoneal approaches can easily miss these masses, since they are usually found at the distal tip of the indirect hernia sack. Retained inguinal cord cysts are likely to continue causing symptoms postoperatively[10]. Ultrasonography is the imaging modality of choice for evaluation of this type of mass. In the case of a mesothelial cyst of the round ligament, the radiologist can show that the cystic lesion is probably not an intestinal hernia because of the absence of peristalsis during real-time ultrasonography. Cysts of the round ligament should be considered in the diferential diagnosis of groin masses especially in women in their third or fourth decades.

Conflict of Interest: None of the authors—Barış Saylam, Mehmet Onur Gülseren, Özge Han, Bülent Çomçalı, Veli Vural, Faruk Coşkun—declare a conflict of interest.

References

1. Harper GB, Awbrey BJ, Thomas CG, Askin FB: Mesothelial cysts of the round ligament simulating inguinal hernia. Am J Surg 1986; 151: 515–517.
2. Novak ER: Gyneological and Obstetrical pathology, 1979; pp 348–349, WB Saunders, Philadelphia.
3. Oh SN, Jung SE, Lee JM, Chung JH, Park GS: Sonographic diagnosis of a round ligament cyst in the inguinal area. J Clin Ultrasound 2007; 35: 226–228.
4. Anderson CC, Broadie TA, Mackey JE, Kopecky KK: Hydrocele of the canal of nuck. Am Surg 1995; 61:

959.
5. Stickel WH, Manner M: Female hydrocele (cyst of the canal of Nuck): sonographic appearance of a rare and little-known disorder. J Ultrasound Med 2004; 23: 429–432.
6. Ryley DA, Moorman DW, Hecht JL, Alper MM: A mesothelial cyst of the round ligament presenting as an inguinal hernia after gonadotropin stimulation for in vitro fertilization. Fertil Steril 2004; 82: 944–946.
7. Oh SN, Jung SE, Rha SE, et al.: Sonography of various cystic masses of the female groin. J Ultrasound Med 2007; 26: 1735–1742.
8. Safak AA, Erdogmus B, Yazici B, et al.: Hydrocele of the canal of Nuck: sonographic and MRI appearances. J Clin Ultrasound 2007; 35: 531–532.
9. Counseller VS, Black BM: Hydrocele of the canal of Nuck: Report of seventeen cases. Ann Surg 1941; 113: 625–630.
10. Welch B, Barton TK: İnguinal cord cysts. Hernia 2002; 6: 33–35.

(Received, February 28, 2012)
(Accepted, June 26, 2012)