

APPENDICEAL MUCOCELE MIMICKING A CYSTIC RIGHT ADNEXAL MASS

Osman Balci*, Suna Ozdemir, Alaa S. Mahmoud

Department of Obstetrics and Gynecology Meram Medicine Faculty, Selcuk University, Konya, Turkey.

SUMMARY

Objective: Appendiceal mucocele is formed by cystic dilatation, abnormal mucinous secretion and epithelial proliferation of the appendiceal lumen. Mucocele may be a finding in cases of benign or malignant neoplasms, and can lead to the development of pseudomyxoma peritonei.

Case Report: A 71-year-old woman presented with a 3-day history of right lower abdominal pain radiating to her right thigh. A simple 5 × 7 cm cyst with smooth borders and a thick capsule was detected in the right adnexal area by transvaginal ultrasonography. Magnetic resonance imaging identified a 4 × 8 cm cystic lesion in the area of the right ovary. The patient was admitted to our clinic with an initial diagnosis of adnexal cyst, later found to be appendiceal mucocele.

Conclusion: The signs and symptoms of appendiceal mucocele are not specific. Because of its anatomic position, it should be considered in the differential diagnosis of adnexal masses. [*Taiwan J Obstet Gynecol* 2009; 48(4):412-414]

Key Words: adnexal cyst, appendix, mucocele

Introduction

Mucocele of the appendix is an obstructive dilatation of the appendiceal lumen due to the abnormal accumulation of mucus. This may result from various processes. The most important mucocèles are those caused by mucinous cystadenomas and cystadenocarcinomas [1]. Mucocele is identified in 0.2–0.3% of all appendectomies and is infrequently considered by gynecologists when a patient presents with right lower quadrant abdominal pain [2]. Rupture of the mucocele, either spontaneously or accidentally during surgery, may result in the development of pseudomyxoma peritonei, where malignant cells spread throughout the entire peritoneal cavity in the form of multiple mucinous deposits. This may lead to infection and intestinal obstruction.

Case Report

A 71-year-old, gravida 0, woman presented with a 3-day history of right lower abdominal pain radiating to her right thigh. The patient had been postmenopausal for 36 years, and she had been treated for hypertension and goiter. Physical examination revealed no rebound or guarding pain but tenderness during deep palpation of the right lower quadrant of the abdomen. Pelvic examination revealed subtotal uterine prolapse. A hard and mobile 6 × 8 cm mass was palpated in the right adnexal area. Other findings were consistent with menopause.

Transvaginal ultrasonography identified a simple cyst, sized 5 × 7 cm, in the right adnexal area, with smooth borders and a thick capsule. The uterus was atrophic, and the endometrial thickness was 4 mm. The intestinal loops were dilated, but no free fluid was seen in the Douglas pouch. Magnetic resonance imaging revealed a 4 × 8 cm cystic lesion in the area of the right ovary (Figure 1). Tumor markers were within normal limits and were as follows: cancer antigen 125 (CA-125), 9.1 U/mL (normal, 0–35 U/mL); carbohydrate antigen 19-9, 5.09 U/mL (normal, 0–37 U/mL); α -fetoprotein,



ELSEVIER

*Correspondence to: Dr Osman Balci, Department of Obstetrics and Gynecology, Meram Medicine Faculty, Selcuk University, 42080, Konya, Turkey.
E-mail: drobalci@yahoo.com

Accepted: June 15, 2009

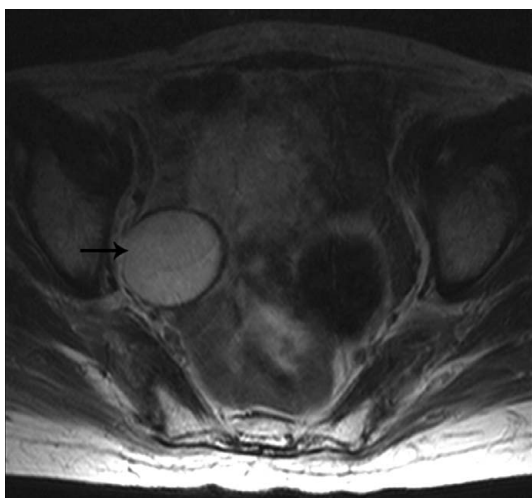


Figure 1. The appearance of mucocoele in magnetic resonance imaging (arrow).

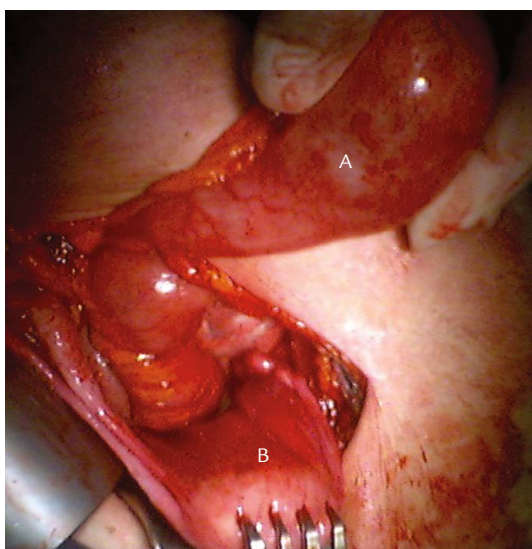


Figure 2. The appearance of mucocoele (A), uterus and ovaries (B) during surgery.

2.4 ng/mL (normal, 0–10 ng/mL); and β -human chorionic gonadotropin, 0.01 mIU/mL (normal, <5 mIU/mL).

Laparotomy was planned under the diagnosis of a pelvic mass. The abdomen was opened by Pfannenstiel incision under general anesthesia. The uterus and ovaries were atrophic. A 5 × 8 cm soft cystic mass with a smooth surface was identified, originating from the appendix and extending to the pelvic region (Figure 2). The abdominal viscera were normal. Appendectomy was performed without rupturing the structure, which was sent for frozen histopathologic examination. Total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed because of subtotal uterine prolapse. A benign appendiceal mucocoele was diagnosed based on examination of the frozen pathologic specimen. Hemostasis was performed and the abdomen was closed.

Discussion

Appendiceal mucocoele is characterized by abnormal mucus accumulation and dilatation of the lumen of the vermiform appendix. Fibrous obliteration of the proximal lumen due to inflammation and the subsequent dilatation of the distal lumen may result from mucosal hyperplasia, fecaliths in the appendix, endometriosis, diverticula, polyps, carcinoid, cystadenoma or cystadenocarcinoma [3]. Histopathologic classification of the mucocoele of the appendix is related to its epithelial characteristics. A total of 63% of mucocoeles are mucinous cystadenomas, 25% are mucosal hyperplasia, and 11% are mucinous cystadenocarcinomas and retention cysts. This classification is important in relation to the prognosis of the disease [4].

Appendiceal mucocoele is four times more common in women than in men. The average age at diagnosis of benign lesions is 54 years, while that for malignant lesions is 64 years. Appendiceal mucocoele is not suspected in 50% of cases, and it is reported to be asymptomatic in 25% of cases. Symptomatic cases usually present with acute or chronic right lower quadrant abdominal pain. Intra-abdominal masses can be palpated in half of the cases [5,6]. Kalu and Croucher [5] reported a case of appendiceal mucocoele that was incidentally found during pelvic ultrasound scan for a spontaneous miscarriage and initially diagnosed as an ovarian mass. Serum CA-125 was normal. Laparotomy revealed normal ovaries with no ovarian pathology. The right adnexal mass was appendiceal in origin and was delivered intact with no spillage. Dragoumis et al [7] reported a case of an appendiceal mucocoele mimicking a cystic tumor of the right adnexa with increasing serum levels of CA-125 up to 120 U/mL. Yildiz and Abbasoglu [8] reported two cases of appendiceal masses. The first case presented with symptoms and findings of an invasive neoplasm. A periappendicular abscess was identified in the ileocecal region during laparotomy, and an appendectomy performed. A perforated appendix was diagnosed on the basis of the pathology report. The second case had findings of a pelvic mass in close proximity to the right ovary. Laparotomy revealed a large mucocoele originating from the tip of the appendix. Appendectomy was performed, and pathologic examination confirmed the diagnosis of a benign mucocoele. Traub et al [9] reported a case of pseudomyxoma peritonei of appendiceal origin causing tubal factor infertility.

None of the cases reviewed above was diagnosed preoperatively. Our case was initially diagnosed as an adnexal cyst and was only discovered to be an appendiceal mucocoele during laparotomy. Preoperative diagnosis of appendiceal mucocoele is very difficult because

of the lack of specific symptoms. The possibility of malignancy should be considered. It is important to prevent rupture during surgery, thereby preventing pseudomyxoma formation and the spread of malignancy.

Treatment of appendiceal mucocoele is surgical. Fine-needle aspiration is not recommended, because it may cause rupture and spread of the neoplasm and localized or diffuse pseudomyxoma peritonei [5]. Laparoscopic treatment should also be avoided because of the increased risk of rupture. In non-neoplastic mucocoeles of the appendix and simple cystadenomas, appendectomy alone is curative. However, in widespread cystadenomas and cystadenocarcinomas, more extended surgery, such as resection of the cecum and right hemicolectomy, may be required. Some studies have reported that appendectomy may also be adequate in cases without perforation of the appendix or spread of mucin [10,11].

Mucocoele of the appendix is rarely seen, and its preoperative diagnosis is very difficult. Appendiceal mucocoele should be considered in elderly patients, especially women who have atypical ultrasonographic findings in right adnexal masses (purely cystic mass with anechoic fluid, hypoechoic mass with variable internal echogenicity, a thin inner echogenic rim, and outer echolucent layer of the wall representing bowel wall "onion skin-like"). It is important to bear in mind the possibility of mucocoele of the appendix when starting surgery, to allow wide excision of the tumor without rupture.

References

1. Zuzarte JC, Liu YC, Cohen AM. Fine needle aspiration cytology of appendiceal mucinous cystadenoma: a case report. *Acta Cytol* 1996;40:327–30.
2. Chong SJ, Chan MY. Mucinous cystadenoma of the appendix—an unusual cause of intestinal obstruction. *Ann Acad Med Singapore* 2001;30:206–7.
3. Nopajaroonsri C, Mreyoud N. Retention mucocoele of appendix due to endometriosis. *South Med J* 1994;87:833–5.
4. Bartlett C, Manoharan M, Jackson A. Mucocoele of the appendix—a diagnostic dilemma: a case report. *J Med Case Reports* 2007;1:183.
5. Kalu E, Croucher C. Appendiceal mucocoele: a rare differential diagnosis of a cystic right adnexal mass. *Arch Gynecol Obstet* 2005;271:86–8.
6. Coulier B, Pestieau S, Hamels J, Lefebvre Y. US and CT diagnosis of complete cecocolic intussusception caused by an appendiceal mucocoele. *Eur Radiol* 2002;12:324–8.
7. Dragoumis K, Mikos T, Zafrakas M, Assimakopoulos E, Venizelos I, Demertzidis H, Bontis J. Mucocoele of the vermiform appendix with sonographic appearance of an adnexal mass. *Gynecol Obstet Invest* 2005;59:162–4.
8. Yildiz BD, Abbasoglu O. Two unusual presentations of appendiceal masses. *Int J Surg* 2008;6:e9–11.
9. Traub ML, Lee DS, Paty PB, Lieman H. Mucocoele of the appendix causing tubal factor infertility. *Fertil Steril* 2009;91:1957.e17–20.
10. Scotté M, Laquerrière A, Riff Y, et al. Appendiceal mucocoeles: pathophysiology and therapeutic indications. *J Chir (Paris)* 1994;131:303–12. [In French]
11. Landen S, Bertrand C, Maddern GJ, Herman D, Pourbaix A, de Neve A, Schmitz A. Appendiceal mucocoeles and pseudomyxoma peritonei. *Surg Gynecol Obstet* 1992;175:401–4.