Case Report

DOI: http://dx.doi.org/10.18203/2349-2902.isj20170233

Mucocele of the appendix: a rare case report

Sudarshan P. B., Reshma S.*

Department of General Surgery, Saveetha Medical College, Chennai, Tamil Nadu, India

Received: 28 October 2016 Accepted: 28 November 2016

*Correspondence: Dr. Reshma S.,

E-mail: dr.reshma101167@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Appendiceal mucocele is a rare disease. Sometimes it is discovered accidentally and sometimes it resembles acute appendicitis. Correct diagnosis before surgery is important for the selection of adequate surgical treatment to avoid intraoperative and postoperative complications. Ultrasonography, and particularly computed tomography, should be used extensively for this purpose. If mucocele is treated incorrectly, pseudomyxoma peritonei may develop. We present a case of 22 year old man who was admitted to the emergency department with the signs of acute appendicitis. Emergency open appendectomy was performed. At the time of surgery, a cystic mass was found at the tip of the inflammed appendix. No free fluid was found in the peritoneal cavity. Diagnosis of Mucocele of appendix was suspected. Appendectomy was done and specimen sent for histopathological examination. No lymphadenopathy. Histopathologic diagnosis was subacute appendicitis, mucocele of appendix with simple mucous cyst. Patient is on regular follow-up.

Keywords: Appendix, Appendicitis, Mucocele

INTRODUCTION

Appendiceal mucocele is an obstructive dilatation of the appendix caused by intraluminal accumulation of mucoid material. It is a rare disease. The incidence is 0.2% to 0.7% of all appendectomied specimens.¹⁻⁴ There are four histologic types of appendiceal mucocele: retention cyst, mucosal hyperplasia, mucinous cystadenoma, and mucinous cystadenocarcinoma. This disease does not have a typical clinical picture. Sometimes the patient has pain in the lower right quadrant of the abdomen, therefore a surgeon may mistake it for acute appendicitis. It is important to differentiate between these two pathologies before surgery and select adequate surgical tactics. If treated improperly, the mucocele may progress, epithelial cells may escape in to the peritoneal cavity, and pseudomyxoma peritonei may develop, which has a high mortality.⁵ We present a rare case of appendiceal m/ucocele which was diagnosed intraoperatively.

CASE REPORT

A 22 year old man presented with complaints of Pain in the right lower quadrant of the abdomen, nausea and fever. The symptoms started 3 days prior. On palpation, tenderness was noted at Mcburney's point. His laboratory reports showed total counts of 14,100 cells/cumm, body temperature was 37.5C. Ultrasonography of abdomen showed blind ending, aperistaltic, tubular structure suggestive of acute appendicitis. The patient was diagnosed with acute appendicitis and emergency open appendectomy was performed. At the time of surgery, a cystic mass was found at the tip of the inflammed appendix, measuring 2 x 1 x 1 cm (Figure 1), but without perforation, was discovered in the right iliac fossa. No free fluids was found in the peritoneal cavity. A mucocele of appendix was suspected. Appendectomy was performed because cystic mass was found only at the tip and base was free. No lymphadenopathy. Histopathologic

diagnosis was subacute appendicitis, mucocele of appendix with simple mucous cyst (Figure 2). There were no complications in the post-operative period. Patient was discharged and is on regular follow-up.



Figure 1: Cystic mass at tip of the inflammed appendix.

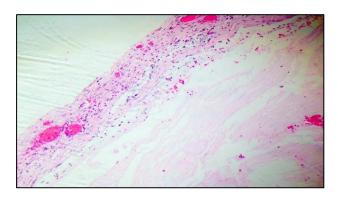


Figure 2: Microscopic view of mucocele of appendix with simple mucous cyst.

DISCUSSION

Mucocele of the appendix was first described by Rokitansky.⁶ This disease is characterized by dilatation of a lumen as a resutt of an accumulation of a large amount of mucus. The appendix is lined by epithelium containing more goblet cells than the colon. As a result, more appendiceal epithelial tumors are mucinous and start as mucoceles.⁷ Its incidence ranges between 0.2% and 0.7% of all excised appendixes. 1-4,8,9 This condition can have benign as well as malignant processes. There are 4 histologic types: retention cyst, mucosal hyperplasia, mucinous cystadenoma, and mucinous cystadenocarcinoma. In about 50% of cases it is discovered accidentally during radiologic examinations or at surgery.

A patient's clinical symptoms may include pain in the right lower quadrant of the abdomen, palpable abdominal mass, nausea, vomiting, weight loss, gastrointestinal bleeding, and signs of intussus ception of the intestines.^{3,5,8,10-15} Preoperative diagnosis of appendicular

mucocele is very important for the selection of an adequate surgical method to prevent peritoneal dissemination, to prevent intraoperative and postoperative complication, and repeated surgery.^{5,10} Ultrasonography, computed tomography, (CT) is used for diagnosis.

USG is the first line diagnostic method for patients with acute abdominal pain, can be used to differentiate between mucocele and acute appendicitis. In case of acute appendicitis, the outer diameter threshold of the appendix is 6mm, and more indicates the presence of a mucocele, with 83% sensitivity and 92% specificity. 9,16-18 CT can be used to discover the signs specific to mucocele with high accuracy: appendix lumen more than 1.3 cm, its cystic dilatation, and wall calcification. 3,8,14,16,19,20 By colonoscopy an elevation of the appendiceal orifice is seen and a yellowish mucous discharge would be visible from this orifice. Furthermore, synchronous and metachronous tumors of colon can be identified. 3,8,14,21,22 In our patient ultrasonography of abdomen showed only features of acute appendicitis. We thought that this was acute appendicitis and did not perform CT. One of the cardinal principles of surgical treatment of this disease is that intact mucoceles do not pose a threat for the patient. If it is perforated and filling turns up in the peritoneal cavity, there is a high probability that pseudomyxoma Peritonei will develop, for which treatment is very problematic and long- term results are quite unsatisfactory.^{5,10,23}

Therefore, the selection of an adequate surgical method is very important. Some surgeons think that open surgery should be favored against laparoscopy. If the surgery was launched using a laparoscopic method and it appears that there is an appendiceal mucocele, it must be converted into open surgery. This has 2 objectives; 1) to perform surgery carefully so the cyst is not ruptured and the filling is not scattered into the peritoneal cavity and 2) with an open surgery compared to the laparoscopic method, it is possible to have a fuller inspection, palpation, and direct inspection of the spots in the abdomen where mucinous tumors are most common.^{5,10,14,24} Some surgeons consider that the operation can be performed using a laparoscopic method by adhering to safety rules, especially when removing the mucocele from the abdomen and an endobag must be used. 1,25,26

An algorithm for the selection of the type of surgery has been furnished by Dhage, Ivatury and Sugarbaker. 10 It envisages several factors: 1) Whether mucocele is perforated or not. 2). Whether the base of the appendix (margins of resection) is involved in the process; and 3) whether there are positive lymph nodes of mesoappendix and ileocolic. As a result patients may require different operations: appendectomy to right colectomy, including heated cytoreductive surgery, intraoperative intraperitoneal chemotherapy, early postoperative intraperitoneal chemotherapy. 10 In our patient the mucocele was not perforated, base of the appendix was normal (negative margins of resection), and no regional lymph node enlargement. Therefore, only appendectomy was performed, which is an adequate surgery in such a case. Also, according to the algorithm, no long - term follow-up is advised for our patient.

CONCLUSION

Appendiceal mucocele is a rare disease and has a clinical picture that resembles acute appendicitis. A correct diagnosis before surgery is very important for the selection of surgical technique to avoid severe intraoperative and postoperative complications. Ultrasonography, particularly CT, should be used extensively for this purpose. Open surgery should be favored against laparoscopic surgery.

Funding: No funding sources Conflict of interest: None declared Ethical approval: Not required

REFERENCES

- Rangarajan M, Palanivelu C, Kavalakat AJ, Parthasarathi R. Laparoscopic appendectomy for mucocele of the appendix. Indian J Gastroenterol. 2006;25(5):256-7.
- Marudanayagam R, Williams GT, Rees BI. Review of the pathological results of 2660 appendectomy specimens. J Gastroenterol. 2006:41(8):745-9.
- Tovar RJ, Teruel DG, Gastineires VM, Dehesa AS, Quindos PL, Molina EM. Mucocele of the appendix. World J Surg. 2007;31(3):542-8.
- 4. Smeenk RM, Velthuysen ML, Verwaal VJ, Zoetmulder FA. Appendiceal neoplasms and pseudomyxoma peritonei: a population-based study. Eur J Surg Oncol. 2008;34(2):196-201.
- Sugarbaker PH. Appendiceal epithelial neoplasms and pseudomyxoma peritonei, a distinct clinical entity with distinct treatments. In: Bland KJ, Buchler MW, Csendes A, Garden OY, Saar MG, Wong J (eds). General Surgery. Principles and International Practice. London-Limited: Springer, 2009:885-893.
- Rokitansky CF. A Manual of pathological anatomy. Nabu Press; Philadelphia: Blanchard & Lea. 2011;1855.
- Sugarbaker PH. Epithelial appendiceal neoplasms. Cancer J. 2009;15(3):225-35.
- 8. Lozano GA, Tarrago VA, Garcia CC, Aznar RJ, Abril GS, Abad M. Mucocele of the appendix: presentation of 31 Cases. Cir Esp. 2010; 87(2):108-12.
- Lien WC, Huang SP, Chi CL, Liu KL, Lin MT, Lai TI, et al. Appendiceal outer diameter as an indicator for differentiating appendiceal mucocele from appendicitis. Am J Emerg Med. 2006;24(7):801-5.
- Ivatury S, Sugarbaker PH. Update on the surgical approach to mucocele of the appendix. J Am Coll Surg. 2006;202(4):680-4.
- Papaziogas B, Koutelidakis I, Tsiaousis P, Goula OC, Lakis S, Atmatzidis S, et al. Appendiceal mucocele a

- retrospective analysis of 19 cases. J Gastrointest Cancer. 2007;38(2-4):141-7.
- 12. Haritopoulos KN, Brown DC, Lewis P, Mansour F, Eltayar AR, Labruzzo C, et al. Appendiceal mucocele: a case report and review of literature. Int Surg. 2001;86(4):259-62.
- 13. Vriens BH, Klaase JM. Giant mucinous cystadenoma of the appendix. Am J Surg. 2007;194(3):392-3.
- 14. Karakaya K, Barut F, Emre AU, Ucan HB, Cakmak GK, Irkorucu O, et al. Appendiceal mucocele: case reports and review of current literature. World J Gastroenterol. 2008;14(14):2280-3.
- Ashrafi M, Loshi V, Zammit M, Telford K. Intussusception of the appendix secondary to mucinous cystadenoma: a rare cause of abdominal pain. Int J Surg Case Rep. 2011;2(2):26-7.
- Francica G, Lapiccirella G, Giardibello C, Scarano F, Angelone G, Marino F, et al. Giant mucocele of the appendix: clinical and imaging finding in 3 cases. J Ultrasound Med. 2006;25(5):643-8.
- 17. Birnbaum BA, Wilson SR. Appendicitis at the millennium. Radiology. 2000;215(2):337-48.
- Sasaki K, Ishida H, Komatsuda T, Suzuki T, Konno K, Ohtaka M, et al. Appendiceal mucocele: sonographic findings. Abdom Imaging. 2003;28(1):15-8.
- Pickhardt PJ, Levy AD, Rohrmann CA, Kende AL. Primary neoplasms of the appendix manifesting as acute appendicitis: CT findings with pathologic comparison. Radiology. 2002;224(3):775-81.
- Benett GL, Tanpitukponqse TP, Macari M, Cho KC, Babb JS. CT diagnosis of mucocele of the appendix in patients with acute appendicitis. AJR Am J Roentgenol. 2009;192(3):103-10.
- 21. Zanati SA, Martin JA, Baker JP, Streutker CJ, Marcon NE. Colonoscopic diagnosis of mucocele of the appendix. Gastromtest Endose. 2005;62(3):452-6.
- Fuchs C, Kuruvilla YC, Angst E, Weimann R, Gloor B, Candinas D. Appendiceal mucocele in an elderly patient: how much surgery? Case report. Gastroenterology. 2011;5(3):516-22.
- 23. Misdraji J, Yantiss RK, Cook FM, Balis UJ, Young RH. Appendiceal mucinous neoplasms. A clinicopathologic analysis of 107 cases. Am J Surg Pathol. 2003;27(8):1089-103.
- 24. Khan MR, Ahmed R, Saleem T. Intricacies in the surgical management of appendiceal mucinous cystadenoma: a case report and review of literature. J Med Case Reports. 2010;5(4):129.
- Chiu CC, Wei PL, Huang MT, Wang W, Chen TC, Lee WJ. Laparoscopic resection of appendiceal mucinous cystadenoma. J Laparoendose Adu Surg Tech. 2005;15(3):325-8.
- Liberale G, Lemaitre P, Noterman D, Moerman C, Neubourg E, Sirtaine N, et al. How should we treat mucinous appendiceal neoplasm? By laparoscopy or palarotomy? A case report. Acta Chir Belg. 2010;110(2):203-7.

Cite this article as: Sudarshan PB, Reshma S. Mucocele of the appendix: a rare case report. Int Surg J 2017;4:789-91.