Endometriosis of the Appendix:

When Appendicitis is Less Than Straightforward

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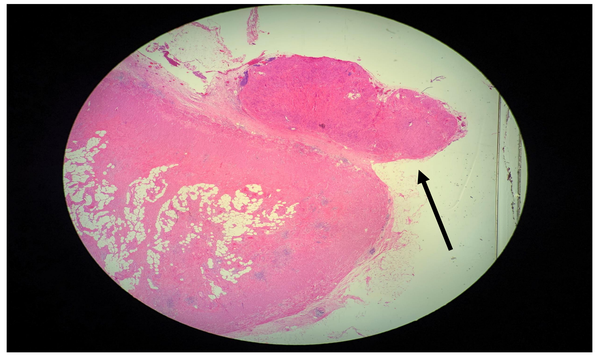
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Objectives:

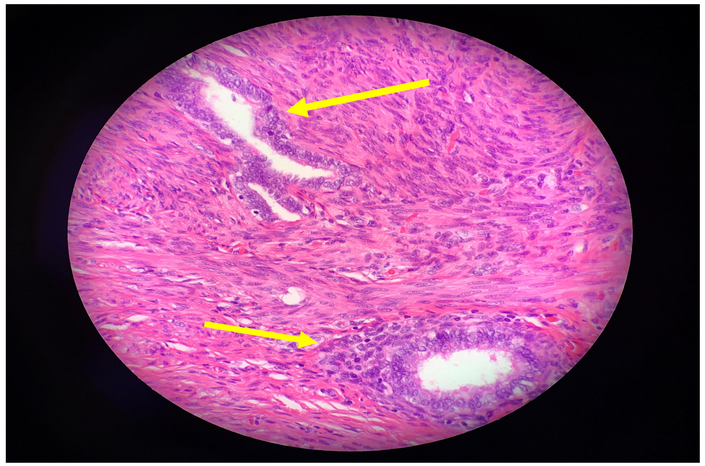
We present a case report of a 49 year-old female with history of ulcerative colitis who originally presented to the General Surgery clinic following an incidental finding on CT for a dilated, fluid-filled appendix. She had been complaining of vague, diffuse abdominal pain consistent with her previous flares of ulcerative colitis over the past several days. She ultimately underwent a laparoscopic appendectomy without complication, which was notable for a grossly enlarged appendix without evidence of perforation or appendiceal mass. Pathology returned consistent with early acute appendicitis, as well as endometrial tissue along the outer wall of the appendix. We then performed a literature review regarding appendiceal masses and the occurrence of endometriomas and/or endometriosis of the appendix.

Methods:

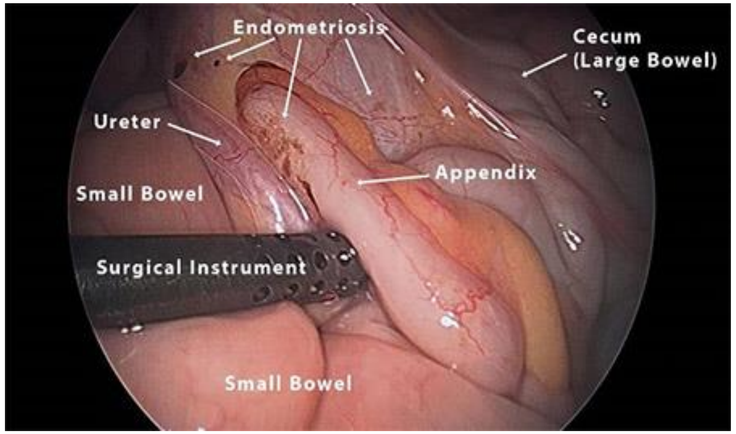
- PubMed ® search was performed using the association of appendix and appendicitis and endometrioma.
- Papers were reviewed for relevance related to articles on appendicitis cases mentioning incidental pathology other than appendicitis in addition to articles discussing appendiceal masses and relative occurrence.
- Specific articles were also examined mentioning occurrence of endometriomas of the appendix and isolated endometrosis of the appendix.



Case appendectomy specimen, appendix tip adjacent to smooth muscle proliferation (black arrow)



Case appendectomy specimen, endometrial-type glands and stroma embedded in smooth muscle (yellow arrow)



Intraoperative photo of a case of endometriosis of the appendix.
Image credit: https://bloominuterus.com/2017/06/08/endometriosis-the-appendix/

Disclaimer: The opinions and assertions contained herein are those of the authors and do not reflect those of Dwight D. Eisenhower Army Medical Center, the Uniformed Services University or the Department of Defense.

Results:

- 2% to 6% of cases of appendicitis present due to an appendiceal mass, usually an inflammatory phlegmon.
- There are a variety of other causes, including primary malignancy, secondary malignancy, and combinations of pathologies that lead to the eventual removal of the appendix.
- Endometriosis of the appendix is reported in less than 1% of females on post-appendectomy pathologic analysis.
- Although clinical specific symptoms may guide a provider to this diagnosis, there are few distinguishing symptoms that would point a provider towards a different underlying diagnosis, to include malignancy, for appendicitis.

Conclusion:

Endometriosis of the appendix is rare, occurring in less than 1% of post-appendectomy pathology specimens of female patients. Further information is needed to determine when a patient has increased risk for an underlying pathology when presenting with appendicitis. This information, paired with histopathologic analysis of the appendix after appendectomy, will drive continued treatment and ideally lead to better screening tools for appendiceal masses.

References:

- Alhadid D, AlShammari A, Almana H, Aburahmah M. Missed Gastric Cancer Metastasis to the Appendix: Case Report and Literature Review. Am J Case Rep. 2020;21:e920010. Published 2020 Jan 5. doi:10.12659/AJCR.920010
- Alvarado A. A practical score for the early diagnosis of acute appendicitis. Ann Emerg Med. 1986;15(5):557-564. doi:10.1016/s0196-0644(86)80993-3
- Feldhaus DJ, Harris RK, Dayal SD. Appendiceal Endometriosis Presenting as Possible Cecal Mass. Am Surg. 2020;86(11):1528-1530. doi:10.1177/0003134820933606
- Leonards LM, Pahwa A, Patel MK, Petersen J, Nguyen MJ, Jude CM. Neoplasms of the Appendix: Pictorial Review with Clinical and Pathologic Correlation. Radiographics. 2017;37(4):1059-1083. doi:10.1148/rg.2017160150
- Ma Q, Wu J. Endometrioid Adenocarcinoma With Solitary Metastasis to the Appendix, Mimicking Primary Appendiceal Adenocarcinoma: A Case Report and Literature Review. Int J Gynecol Pathol. 2019;38(4):393-396. doi:10.1097/PGP.0000000000000510
- Perez KS, Allen SR. Complicated appendicitis and considerations for interval appendectomy. JAAPA. 2018;31(9):35-41. doi:10.1097/01.JAA.0000544304.30954.40
- Pickhardt, P. J., Levy, A. D., Rohrmann, C. A., Jr, & Kende, A. I. (2003). Primary neoplasms of the appendix: radiologic spectrum of disease with pathologic correlation. Radiographics : a review publication of the Radiological Society of North America, Inc, 23(3), 645–662. https://doi.org/10.1148/rg.233025134
- Snyder MJ, Guthrie M, Cagle S. Acute Appendicitis: Efficient Diagnosis and Management. Am Fam Physician. 2018;98(1):25-33.
- Teixeira FJR Jr, Couto Netto SDD, Akaishi EH, Utiyama EM, Menegozzo CAM, Rocha MC. Acute appendicitis, inflammatory appendiceal mass and the risk of a hidden malignant tumor: a systematic review of the literature. World J Emerg Surg. 2017;12:12. Published 2017 Mar 9. doi:10.1186/s13017-017-0122-9
- Wang, Q., Zhou, T., Sun, H., & Li, B. (2017). Metastasis of esophageal small cell carcinoma to the appendix: A case report and literature review. Cancer biology & therapy, 18(9), 666–669. https://doi.org/10.1080/15384047.2017.1360447