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Acute Abdominal Case Report Ruptured Ovarian Endometriotic Cyst Concurrent With Acute Appendicitis

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Abstrak

Laporan kasus ini menyajikan dilema diagnostik yang unik dari seorang wanita muda dengan kista endometriotik ovarium yang pecah dan radang usus buntu akut. Nyeri panggul akut pada wanita muda dapat disebabkan oleh beragam hal dan memerlukan evaluasi segera karena adanya potensi intervensi bedah yang dapat menyelamatkan nyawa. Pasien datang dengan keluhan nyeri tiba-tiba di perut kanan bawah, yang memburuk saat beraktivitas. Pemeriksaan fisik dan hasil laboratorium mendukung dugaan penyakit radang panggul yang melibatkan ovarium kanan dan usus buntu. Namun, operasi laparoskopi darurat menunjukkan adanya ruptur kista endometriotik ovarium dan radang usus buntu akut. Kasus ini menyoroti tantangan dalam membedakan antara penyebab nyeri panggul akut ginekologi dan non-ginekologi dan menekankan perlunya evaluasi komprehensif untuk menghindari mengabaikan patologi yang terjadi bersamaan. Temuan ini menjadi pengingat bagi para dokter untuk mempertimbangkan berbagai penyebab ketika menangani nyeri panggul akut, karena berbagai entitas yang berbeda dapat hidup berdampingan, meskipun jarang terjadi. Membangun judul dan abstrak yang informatif sangat penting untuk pencarian literatur yang efektif menggunakan sistem pencarian informasi kontemporer.

Kata Kunci: Kista endometriotik ovarium pecah, Apendisitis akut, Nyeri panggul akut, Intervensi bedah.

Abstract

This case report presents a unique diagnostic dilemma of a young woman with concurrent ruptured ovarian endometriotic cyst and acute appendicitis. Acute pelvic pain in young women can have varied causes and requires prompt evaluation due to potential life-saving surgical interventions. The patient presented with sudden right lower abdominal quadrant pain, which worsened during activity. Physical examination and laboratory results supported the suspicion of pelvic inflammatory disease involving the right ovary and appendix. However, emergency laparoscopic surgery revealed the presence of ruptured ovarian endometriotic cyst and acute appendicitis. This case highlights the challenge in differentiating between gynecologic and non-gynecologic causes of acute pelvic pain and emphasizes the need for a comprehensive evaluation to avoid overlooking concurrent pathologies. The findings serve as a reminder to clinicians to consider multiple causes when managing acute pelvic pain, as coexistence of diverse entities is possible, even if rare. Constructing informative titles and abstracts is essential for effective literature searches using contemporary information-retrieval systems.

Keywords: Ruptured ovarian endometriotic cyst, Acute appendicitis, Acute pelvic pain, Surgical interventions



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INTRODUCTION

Acute pain of pelvic origin is a common symptom necessitating emergent medical evaluation. Acute pelvic pain in young women can present as a unique diagnostic dilemma. Differential diagnosis in acute pelvis pain can vary according to its own risk.[1][2] From adolescent, non pregnant reproductive woman, pregnant woman and postmenopausal woman has its own common gynecologic cause that can cause acute pelvic pain. The duration of acute pelvic pain may range from several hours to several days, and its possible causes span a gamut from functional ovarian cysts that require routine follow up to adnexal torsion and ectopic pregnancy requiring urgent surgical management.[3] All these events occur in premenopausal patients and prompt diagnosis allows potentially ovary-sparing or life saving surgery. Endometriotic cyst affects an estimated 10% of premenopausal women. Rupture of an endometriotic cyst is a rare event, with an estimated incidence of less than 3% among women of child bearing age who are known to have endometriotic cyst.[4][5] This situation occurs more commonly in large lesion (> 6 cm) and during pregnancy due to hormonal stimulation of endometrial stromal elements. Acute appendicitis accounts for 27,5% of abdominal surgical emergencies and is the most common cause of non gynecologic disease. Concurrent between ruptured endometriotic cyst and acute appendicitis is more rare but possible to happened.[6]

The results of this research study are extremely important because they address the issue of acute pelvic pain and its causes. Acute pelvic pain is a common and concerning medical problem, especially in young women.[7] It requires urgent medical evaluation. The challenge lies in correctly identifying the different causes of the pain, as the risk factors and appropriate treatment can vary greatly depending on the patient group.[8] This report focuses on the specific gynecologic causes of acute pelvic pain in different groups, including adolescents, non-pregnant reproductive women, pregnant women, and postmenopausal women. It stresses the need for timely and accurate diagnosis, as this can potentially lead to surgeries that save the ovaries or even save lives.[9][10] This information is critical for healthcare professionals to provide effective and timely care to their patients who experience acute pelvic pain. Additionally, the study highlights the occurrence of ruptured endometriotic cysts in a significant number of premenopausal women.[11][12] It points out that ruptures are more likely to happen in larger cysts and during pregnancy due to hormonal stimulation. Understanding these factors is important in comprehending why endometriotic cysts rupture, leading to acute pelvic pain and potential complications.[13] The report also recognizes acute appendicitis as the most common non-gynecologic cause of abdominal surgical emergencies, accounting for a notable percentage of cases. It acknowledges the rare but possible concurrent presentation of ruptured endometriotic cyst and acute appendicitis.[6] This indicates the complexities involved in managing such cases and emphasizes the need for healthcare providers to be aware. In conclusion, publishing this report is crucial for sharing the latest research on acute pelvic pain and its causes, risks, and management options. The information presented here will contribute to a better understanding of this condition within the medical community, leading to improved diagnostic accuracy, timely interventions, and ultimately better patient outcomes.

CASE REPORT

A young woman, 35 years old, came to our hospital emergency room with a chief complaint of sudden onset of right lower abdominal quadrant pain 6 hours before admission. Patients describe it as an alternate pain < 5 minutes, moderate pain with VAS 6, burning and stabbed sensation and the pain increase during activity. Two days before admission, a patient complaint for epigastric pain. No sign of fever. Urination and defecation are within normal limits. No history of previous surgery, menstrual pain during lifetime, sexual intercourse or pregnancy. Menstrual cycle is within normal limits. Physical examination showing compos mentis with vital sign is within normal limits. Abdominal examination showing distended abdomen with Rovsing sign and vaginal discharge positive. Pelvic examination showing anteflexion uterus with cervical motion tenderness negative. Other physical examinations are within normal limits. Laboratory results showing high neutrophil count, WBC count and CRP. Urinalysis showing high bacterial deposit in urine observed. Based on physical examination and laboratory results the patient was diagnosed with abdominal pain ec.appendicitis. Chest Xray and abdominal CT Scan without contrast administration was performed. Chest Xray result is within normal limit.

Abdominal CT Scan revealed ascites in perihepatic region, paracolic gutter and pelvic region. Right adnexal region showing an unilocular heterogeneous cystic lesion with ovoid shape and well defined border size +/- 6,2 x 8,7 x 8,5 cm with surrounding fluid collection. Hemorrhagic component within the lesion observed. Left ovary and uterus are within normal limits. Non visualized appendix with ascites in periappendiceal region observed. A few periappendiceal lymph nodes observed with non significant short axis diameter. No sign of significant surrounding fat stranding observed.

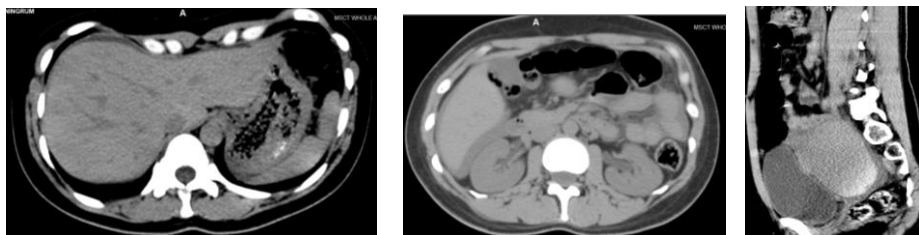


Figure 1. Unenhanced abdominal CT Scan showing ascites in perihepatic region, paracolic gutter, pelvic and cavum Douglas observed.

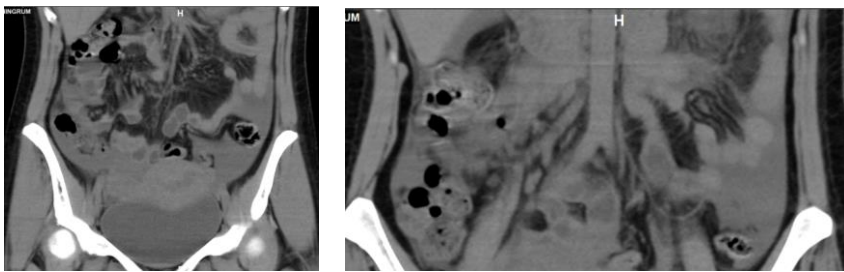


Figure 2. Non visualized appendix with periappendiceal lymph nodes with non significant short axis diameter.



Figure 3. A heterogenous right adnexal cystic lesion with hemorrhagic component and surrounding fluid collection observed.

Based of clinical history, physical examination, laboratory result and abdominal CT Scan we conclude this patient with complex cyst suspicious finding for pelvic inflammatory disease involving right ovary and appendix. We also recommended for abdominal MRI with contrast administration for further investigation. Patient was planning for joint surgery between gynecologist and digestive surgery team. Few hours later patient complaint for worsening of the pain and undergo emergency surgery without abdominal MRI being performed.

Laparoscopic operation revealed fluid collection “brown” in right subdiaphragm, paracolic gutter until pelvic region with estimated volume +/- 2000 cc. There are also an inflamed appendix, enlarged of right ovary with ruptured ovarian endometriotic cyst diameter +/- 10 cm, both hydrosalping observed and left ovary is within normal limit. Appendectomy and cystectomy was performed without complication. One week later histopathology result from 2 specimens revealed an acute appendicitis and right ovarian endometriotic cyst. It was proven to be a concurrent cases between ruptured ovarian endometriotic cyst and acute appendicitis.

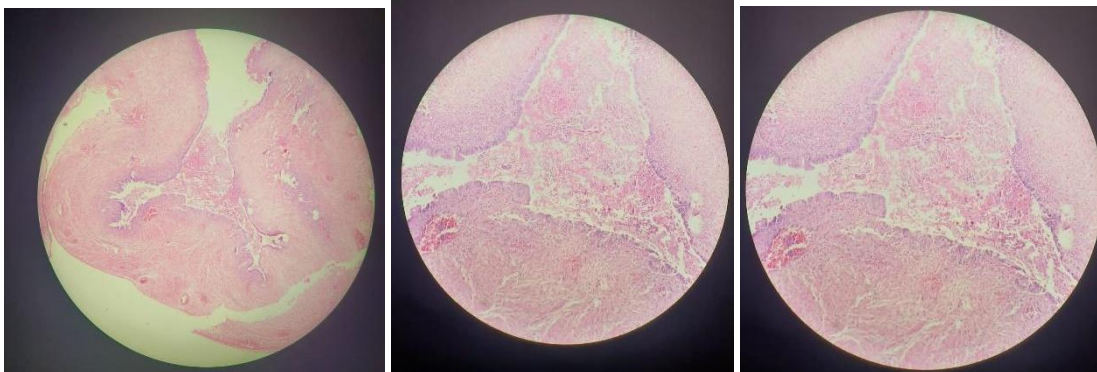


Figure 4. Pathology anatomy specimens showing endometriotic cyst. Lumen of endometriotic cyst covered with columnar epithel. Wall of the connective tissue showing area of hemorrhage.

DISCUSSION

Abdominal and pelvic pain especially in young women can be very tricky to diagnose. A thorough history and physical examination including a gynecologic examination is key to determining the etiology of pain. The differential diagnosis includes but is not limited to acute appendicitis versus gynecologic entities, keeping in mind that they may be concurrent with acute appendicitis or other surgical diseases [11][12]. Right lower quadrant pain is the single most powerful indicator of acute appendicitis. Physical exam likely reveals right lower quadrant tenderness at McBurney’s point, localized tenderness to percussion, positive psoas sign, obturator sign, Rovsing’s sign, and/or Dunphy’s sign. WBC count (>10000 per mm^3) is present in 80% of cases, however leukocytosis alone has a low specificity. An elevated WBC count in conjunction with neutrophilia and elevated CRP level has a sensitivity of 97 to 100% [13]. Diagnosis of acute appendicitis in this patient is absolute and proven from the histopathology result. [The authors provide a compelling argument regarding the complexity of diagnosing abdominal and pelvic pain, particularly in young women. They emphasize the critical importance of a comprehensive history and physical examination, including a gynecologic assessment, to determine the etiology of pain. The differential diagnosis encompasses acute appendicitis and various gynecologic conditions, which may coexist \[11\]\[12\].](#)

Endometriotic cyst also known as chocolate cyst or endometrioma contain dark reddish, brown degenerated blood products. They occur during reproductive years in 17–44% of all women with endometriosis. Infertility and dysmenorrhea occur as the cysts are most often found in the ovaries and less commonly in anterior/posterior culdesac, the uterosacral ligaments, uterus, or colon [14]. The authors detail key indicators of acute appendicitis, such as right lower quadrant pain and specific physical exam findings, along with laboratory results that aid in diagnosis [13]. They then explore endometriotic cysts, describing their characteristics, prevalence, and associated symptoms [14]. Physical exam findings include tenderness or nodules in the culdesac or uterosacral ligaments, pain with uterine movement, enlarged adnexal masses, or fixation of adnexa or uterus in a retroverted position. Transvaginal US, CT, and MRI can aid in diagnosis [15][16]. The authors thoroughly discuss imaging modalities for diagnosing endometriotic cysts, including ultrasound, CT, and MRI, highlighting their respective sensitivities and specificities [15][16][17]. On US 50% classically appear as a unilocular cyst and less commonly a multiloculated cyst, a cystic-solid lesion (15%), purely solid lesion (1%), or anechoic cyst (2%) in postmenopausal patients. Findings on CT scans show a hyperdense focus inside an ovarian cyst that may help differentiate an endometriotic cyst from other pelvic masses. MRI imaging showing well-defined markedly hypointense foci with the cystic lesion on T2WI had a sensitivity of 93% but low specificity of 45% as other types of hemorrhagic cystic adnexal lesions, such as functional hemorrhagic ovarian cysts can appear similar [17]. Furthermore, they elucidate the imaging findings for ruptured endometriotic cysts and differentiate them from other conditions like pelvic inflammatory disease and ovarian torsion [18][19][20][21]. The authors' detailed explanation of these various conditions and their diagnostic criteria demonstrates their expertise and provides a logical cause-and-effect narrative

Imaging finding for ruptured endometriotic cyst is an endometriotic cyst with an irregular thick contour margin hemoperitoneum, crenulated hyperdense cyst wall, focal wall disruption and surrounding inflammatory changes. Differential diagnosis of ruptured ovarian endometriotic cyst are PID/TOA and ovarian torsion [18]. Pelvic inflammatory disease (PID) may lead to endometritis, salpingitis, oophoritis, peritonitis, perihepatitis, and tubo-ovarian abscess [19]. Common findings include vaginal discharge, urinary symptoms, history of PID, tenderness outside the right lower quadrant, cervical motion tenderness, and positive urinalysis. Pelvic sonogram and CT scan identify uni or multilocular adnexal mass with thick and enhancing wall, peripheral vascularity within its wall, fat stranding, endometrial fluid, debris, and indistinct tissue planes. MRI imaging showing bright on DWI [20]. Ovarian torsion occurs when ovarian cysts or neoplasms, usually ≥ 5 cm, twist around the vascular pedicle compromising blood flow and resulting in ischemia of the ovary, which can lead to necrosis, hemorrhage, or peritonitis [18]. Ovarian torsion has been estimated to account for 2.7% of surgical emergencies. Physical exam may reveal a palpable adnexal mass. Color Doppler sonography identifies enlarged ovary with lack of vascularity. Imaging of CT Scan showing hypoattenuating peripheral cyst and twisting of the ovarian pedicle is pathognomonic [20][21].

In conclusion, this case report highlights the complexity in diagnosing abdominal and pelvic pain, particularly in young women. It emphasizes the importance of a thorough history, physical examination, and consideration of gynecologic causes in addition to surgical conditions like acute appendicitis. One weakness of this case report is the limited sample size, as it focuses on a single patient.[23] This limits the generalizability of the findings and prevents broader conclusions from being drawn. Further research with larger sample sizes is needed to validate the findings and explore the occurrence of concurrent gynecologic disorders in patients with acute appendicitis. Future research should also aim to investigate the possible relationship between acute appendicitis and gynecologic disorders, particularly endometriotic cysts. Understanding the underlying mechanisms and risk factors for these concurrent conditions can lead to improved diagnostic strategies and timely interventions. Additionally, comparative studies evaluating different imaging modalities for accurately diagnosing ovarian endometriotic cysts and distinguishing them from other pelvic masses would be valuable [23][24]. In evaluating the strengths and limitations of this case report, the authors acknowledge that while it offers valuable insights into the diagnostic challenges of abdominal and pelvic pain, the single-patient focus limits its generalizability [23]. This limitation underscores the need for larger-scale studies to validate the findings and explore the prevalence of concurrent gynecologic disorders in patients with acute appendicitis. The authors effectively compare their findings with relevant research outlined in the state of the art, particularly in discussing imaging modalities and diagnostic criteria for various pelvic conditions. The contribution of this case report lies in its emphasis on the importance of considering both surgical and gynecologic causes when evaluating abdominal and pelvic pain in young women. It highlights the potential for concurrent conditions and the need for a comprehensive diagnostic approach. The authors suggest that future research should investigate the relationship between acute appendicitis and gynecologic disorders, particularly endometriotic cysts, to improve diagnostic strategies and timely interventions. Additionally, they propose comparative studies to evaluate different imaging modalities for accurately diagnosing ovarian endometriotic cysts and distinguishing them from other pelvic masses [23][24]. These recommendations demonstrate the potential impact of this research on improving diagnostic accuracy and patient care in cases of complex abdominal and pelvic pain.

CONCLUSION

This case report illustrates how concomitant gynecologic disorder can occur in patient with acute appendicitis. Our patient presented with history of epigastric pain that radiated to the right lower quadrant, abdominal distended with Rovsing sign positive, high level of neutrophil, WBC count and CRP which are classic findings in acute appendicitis. No history lead to endometriotic cyst. However abdominal CT Scan revealed a solitary right adnexal mass with non visualized appendix. Laparoscopic operation revealed a ruptured ovarian endometriotic cyst concurrent with acute appendicitis and proven by histopathology. This serves as a reminder eventhough a rare case but concurrent two different entities can occur.

REFERENCES

1. Kong, M., Parameswaran, K., Keshvala, C., & ... (2020). Acute abdomen or life-threatening heterotopic pregnancy with tubal rupture: where does imaging play a role?. *BMJ Case Reports*. <https://casereports.bmj.com/content/13/12/e239178.abstract>
2. Augustin, G., & Augustin, G. (2018). *Acute Appendicitis*. Springer. https://doi.org/10.1007/978-3-319-72995-4_1
3. Clark, T. J. (2017). Benign conditions of the ovary and pelvis. In *Gynaecology by Ten Teachers*. <https://api.taylorfrancis.com/content/chapters/edit/download?identifierName=doi&identifierValue=10.1201/9781315382418-11&type=chapterpdf>
4. Egusquiza, J. D., & Durso, A. M. (2017). Imaging evaluation of acute pelvic pain in the emergency department. *Applied Radiology*. https://cdn.agilitycms.com/applied-radiology/PDFs/Issues/AR_05-17_Egusquiza-Durso.pdf
5. King, A. L., & Stamatopoulos, N. (2020). Concurrent Escherichia coli tubo-ovarian abscess and Campylobacter jejuni gastroenteritis: a case report. *Case Reports in Women's Health*. Elsevier. <https://www.sciencedirect.com/science/article/pii/S2214911220300229>
6. Pipara, P., & Banerjee, R. (2017). Concurrent ruptured endometrioma with appendiceal endometriosis: a case report. *Journal of Reproduction, Contraception, Obstetrics and Gynecology*. <https://go.gale.com/ps/i.do?id=GALE%7CA534838534&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=23201770&p=HRCA&sw=w>
7. AYDIN, H. O., SOY, E. H. A., & ... (2019). Differences in Abdominal Pain Etiology: Is it from Appendicitis or Ovarian Cyst? *Journal of Clinical and Diagnostic Research*. <https://pdfs.semanticscholar.org/06ec/20eeaab967ca127ba7946e30dbeebe8a4e9f.pdf>
8. Sawadjaan, F. L. B., & Ong, J. P. (2020). Severe gastrointestinal endometriosis causes partial gut obstruction and low-grade appendiceal neoplasm: A case report. *GI Research*. <https://giresearch.ph/jrre/assets/docs/researchpapers/fulltext/Sawadjaan%20appendiceal%20CA.pdf>
9. Sawadjaan, F. L. B., Naval, R., & Ong, J. P. (2020). Severe gastrointestinal endometriosis and low-grade appendiceal mucinous neoplasm: Is there a link? *Philippine Journal of Gastroenterology*. <http://philjgastro.com/index.php/pjg/article/view/9>
10. Petronijevic, S. V., Petronijevic, M., Bratic, D., & ... (2019). Appendiceal endometriosis as a cause of ileus in pregnancy. *Clinical and Experimental Obstetrics & Gynecology*. <https://doi.org/10.12891/ceog4699.2019>
11. Louis MA, Doubleday AR, Lin E, Baek JY, Andoni A, Wang XH. Case report abdominal pain in the female patient : A case of concurrent acute appendicitis and ruptured endometrioma. *Hindawi publishing corporation* 2016:1-4.
12. Potter AW, Chandrasekhar CA. US and CT evaluation of acute pelvic pain of gynecologic origin in nonpregnant premenopausal patients. *Radiographics* 2008;28:1645-59.
13. Dias EL, Filho LG, Ferreira AD. Ruptured endometrioma main imaging findings. *Radiol Bras* 2018;51(6):407-14.
14. Lee YR. CT Imaging findings of ruptured ovarian endometriotic cysts : emphasis on the differential diagnosis with ruptured ovarian functional cysts. *Korean J Radiol* 2011;12(1):59-65.
15. Iraha Y, Okada M, Iraha R, Azama K, Yamashiro T, Tsubakimoto M et al. CT and MRI imaging of gynecologic emergencies. *Radiographics* 2017;37:1569-86.
16. Mukhopadhyay, A., Shinde, A., & Naik, R. (2016). Ovarian cysts and cancer in pregnancy. *Best Practice & Research Clinical Obstetrics & Gynaecology*. Elsevier. <https://www.sciencedirect.com/science/article/pii/S1521693415001996>
17. Sellars, H., & Boorman, P. (2017). *Acute appendicitis. Surgery (Oxford)*. Elsevier. <https://www.sciencedirect.com/science/article/pii/S0263931917301345>
18. Lee, M. S., Moon, M. H., Woo, H., Sung, C. K., & ... (2017). Ruptured corpus luteal cyst: prediction of clinical outcomes with CT. *Korean Journal of Radiology*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5447636/>
19. Hines, J. J., Paek, G. K., Lee, P., Wu, L., & Katz, D. S. (2016). Beyond appendicitis; radiologic review of unusual and rare pathology of the appendix. *Abdominal Radiology*. Springer. <https://doi.org/10.1007/s00261-015-0600-z>
20. Klingbeil, K. D., Azab, B., & Moller, M. G. (2017). Low-grade appendiceal mucinous neoplasm and endometriosis of the appendix. *World Journal of Surgical Oncology*. Springer. <https://doi.org/10.1186/s12957-017-1294-1>
21. Hashimoto, A., Takahama, J., Harada, N., Maeda, S., & ... (2016). A case of uterine torsion concurrent with a ruptured ovarian endometrial cyst. *Abdominal Radiology*. Springer. <https://doi.org/10.1007/s00261-016-0758-z>
22. Basak, F., Hasbahceci, M., Yucel, M., Sisik, A., & ... (2018). Does it matter if it is appendix mucocele instead of appendicitis? Case series and brief review of literature. *Journal of Cancer Research and Clinical Oncology*. https://journals.lww.com/cancerjournal/fulltext/2018/14060/Does_it_matter_if_it_is_appendix_mucocele_instead.33.aspx
23. Kim, T. G., Sudhof, L. S., Liu, F. W., & ... (2020). Spontaneous hemoperitoneum in pregnancy due to endometriosis. *Journal of Endometriosis and Pelvic Pain Disorders*. <https://doi.org/10.1177/2284026520942432>
24. Yohannes, N., Watkins, J. C., Weeks, A. G., & ... (2020). Low-grade appendiceal mucinous neoplasm and endometriosis: incidental coincident pathologies at cesarean section. *International Journal of Gynecological Pathology*. https://journals.lww.com/intjgynpathology/fulltext/2020/09000/Low_grade_Appendiceal_Mucinous_Neoplasm_and.15.aspx