CASE REPORT

Unusual sign of acute retrocaecal appendicitis. a case report

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Abstract

Acute appendicitis is a common abdominal surgical emergency, typically characterised by classical signs and symptoms such as right lower quadrant abdominal pain, and tenderness, along with laboratory findings of leucocytosis and elevated inflammatory markers. However, this condition can present with atypical signs, creating diagnostic challenges for clinicians. We report an unusual case of acute appendicitis in a 53-year-old male, who exhibited the incidental finding of Grey Turner's sign on the right flank. Grey Turner's sign in the context of acute appendicitis initially raised suspicion of other conditions causing retroperitoneal haemorrhage, such as acute pancreatitis, as the primary differential diagnosis. This case underscores the importance of maintaining a broad differential diagnosis when faced with atypical clinical signs.

Keywords: Acute abdomen, retrocaecal appendicitis, Grey turner sign.

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Introduction

Grey Turner's sign is an uncommon subcutaneous manifestation of intra-abdominal pathology that manifests as ecchymosis or discolouration of the flanks.[1] Classically, it correlates with severe acute necrotising pancreatitis, often in association with Cullen's sign (periumbilical ecchymosis). However, it can also be seen in many other conditions that result in intra-abdominal or retroperitoneal haemorrhage.

The discolouration may appear green, yellow, or purple, depending on the degree of red blood cells (RBC) breakdown within the abdominal wall tissues, and it may only develop several days into the course of an illness.

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Grey Turner's sign suggests potentially serious intra-abdominal pathology, particularly intra-abdominal or retroperitoneal bleeding. This sign may be significant in the setting of patients who cannot provide an otherwise adequate history or demonstrate abdominal tenderness on examination due to altered mental status or intubation with mechanical ventilation. Additionally, Grey Turner's sign may guide a clinician to consider retroperitoneal haemorrhage, particularly when bedside ultrasound fails to reveals intra-abdominal bleeding, given that ultrasonography cannot reliably detect retroperitoneal bleeding.[2,3] Diagnosing acute appendicitis can be sometimes challenging as it presents with varied symptoms and signs.[4]

Case Report

The case of a 53-year-old obese male is presented who was admitted to Al Bashir Teaching Hospital, Amman, Jordan in October 2012 with a 5-day history of right-sided lower abdominal pain that initially started in the central part of the abdomen along with vomiting, and diarrhoea. On examination, he looked ill, febrile, and dehydrated. Abdominal examination revealed signs of peritonitis, including generalized guarding, tenderness, and rebound tenderness. Grey Turner's sign was noticed on the right flank. (Figure 1) Laboratory tests showed elevated White blood cells, raised C-reactive protein, and impaired renal function tests. An abdominal X-ray showed signs of peritonitis (dilated bowel loops and multiple air-fluid levels). Abdominal ultrasound (US) revealed signs of severe inflammation in the right iliac fossa, a moderate amount of free fluid collection, and right-sided pleural effusion. Computerised tomography (CT) of the abdomen was not performed because the case was an acute abdomen and the renal function was impaired due to dehydration at the time of presentation; thus, adding CT with contrast could increase the risk of acute kidney injury leading to renal failure. On the other hand, a plain CT was not expected to provide significant additional information beyond the US findings. Laparotomy was performed and showed intra-abdominal free fluid, multiple intestinal adhesions, and a retrocaecal perforated appendix. (Figure 2). Given the presence of peritonitis, an open approach was chosen over a laparoscopic one Exploration revealed free fluid, adhesions and a perforated retrocaecal appendix. The

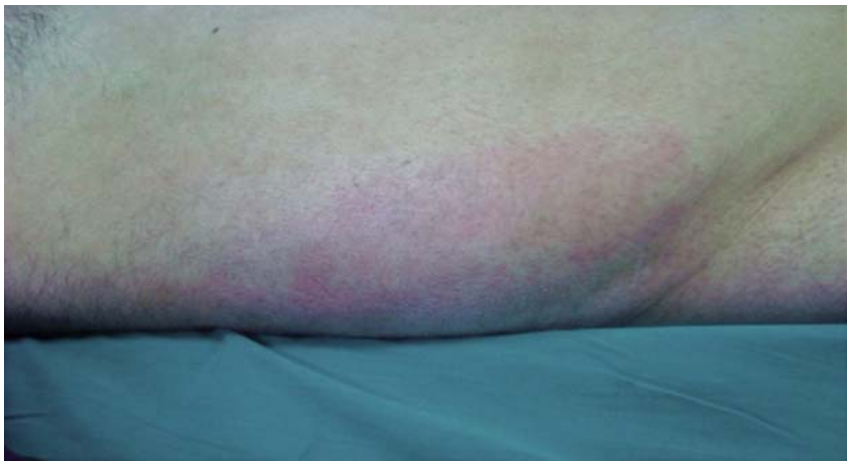

Figure-1: Purple discoloration (Grey Turner's sign) present on the right flank of the 53-year-old patient with signs and symptoms of acute appendicitis

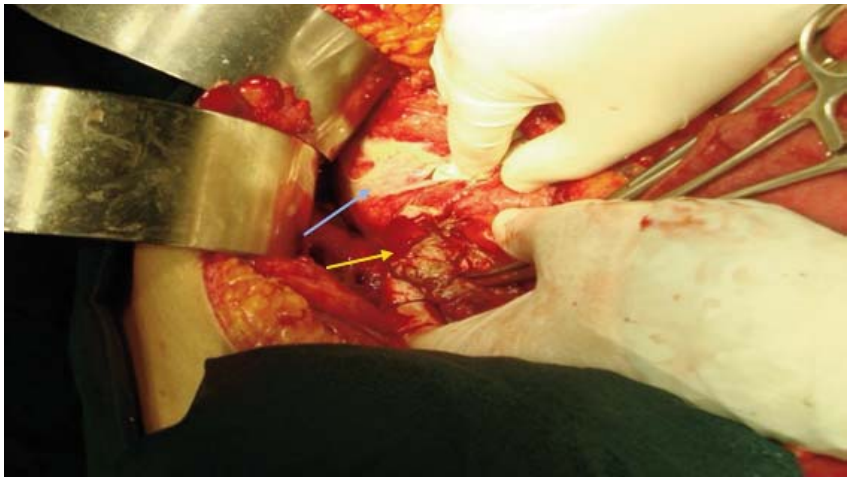

Figure-2: Retrocecal perforated appendix (yellow arrow) with fibrinous material (white, blue arrow).

fluid was aspirated, adhesions were released, and Appendectomy was done along with bowel irrigation and an abdominal drain was left in-situ. Postoperative period was unremarkable, and the patient was discharged three days later. Follow up after one month revealed no complications.

Discussion

Acute appendicitis is the most common presenting condition of acute abdomen. In most cases, the diagnosis is made based on an accurate history and thorough clinical examination alone, without the need for diagnostic adjuncts.[5] While the location of the appendiceal orifice at the base of the caecum is a consistent anatomical feature, the position of its tip can vary. These variations include retrocaecal, sub caecal, pre-ileal and post-ileal, pelvic, and even positions as high as the hepatorenal recess. The retrocaecal position is by far the most common, which can cause clinical confusion in diagnosing appendicitis, since these positional variations may result in different symptoms.[6]

The classical presentation of appendicitis includes anorexia, nausea, and vomiting; low-grade fever; and abdominal pain that starts in the periumbilical region and migrates to the right lower quadrant.[7] However, atypical clinical features of appendicitis may also occur, leading to potential delays in diagnosis and management. These may include left-sided abdominal pain and pain at the right hemiscrotum followed by mild diffuse abdominal pain.[7] Females may present with genitourinary complaints such as tenderness in the femoral region with a mass and diarrhoea while pregnant women can present with RUQ pain.[8]

In this case, the patient presented with an uncommon and an unusual sign of appendicitis, Grey Turner's sign.[5] Usually, Grey Turner's sign is accompanied by Cullen's sign (periumbilical ecchymosis).[9] Classically it is described as a manifestation of acute haemorrhagic pancreatitis, however, it may also be seen in other conditions such as ruptured ectopic pregnancy, ruptured aortic aneurysm, splenic rupture, perforated duodenal ulcer, primary or metastatic liver tumours, perirenal haemorrhage or haemorrhagic ascites but not in cases of acute appendicitis.[4,9] It may also occur in many other conditions that result in intra-abdominal or retroperitoneal haemorrhage.[9] The discolouration may be green, yellow, or purple depending on the degree of red blood cell (RBC) breakdown in the abdominal wall tissues and it may not occur until several days into the illness. In our case the discolouration was purple due to the late presentation of the patient to ER. This sign may be significant in patients who cannot provide a clear history or demonstrate abdominal tenderness on examination due to altered mental status or intubation with mechanical ventilation. However, in our case, the patient was oriented, and the history was typical of acute appendicitis. Abdominal exploration revealed a perforated retrocaecal appendix, which may explain the presence of Grey Turner sign where the inflamed appendix caused a rupture of the local vessels and a retroperitoneal haemorrhage. There is a previous case

reported in a Japanese male where the appendix was severely inflamed, enlarged, and adherent to the anterolateral parietal peritoneum. This case was managed by laparoscopic appendectomy because the patient was prone to perforation and sepsis.[10]

The reason for preferring open laparotomy over laparoscopy in this case, was due to the patient's late presentation and obesity. However, initially starting with laparoscopy with the option to convert to an open approach would also have been a valid choice.

This case is worth publishing due to its unique presentation of acute appendicitis with Grey Tuner sign. To date, only one other case of a Japanese patient has been reported with both Grey Turner and Cullen's sign along with acute appendicitis.[10]

Limitation of this study: This is a case report, and it will not provide insight about the frequency and reason behind this presentation in one group of patients and not in another. There is a need to collect all the data of cases of acute appendicitis with a positive Grey Turner sign worldwide to have a better understanding of the mechanism leading to this presentation.

Conclusion

Acute appendicitis should be considered in patients presenting with a positive Grey Turner's sign. Although this non-specific sign is traditionally associated with various abdominal conditions, it requires a broad differential diagnosis. Timely recognition and appropriate evaluation are essential to prevent misdiagnosis and treatment delays.

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Disclaimer: this case report has not been published before in any national or international journals. It was presented in the International Congress of the American College of Surgeons conference UAE chapter on 15th September 2023.

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References

1. Álvarez-García M, Otegui Martínez-Peñuela L, Calvo Hernández R, Porres Cubero JC. Uncommon etiology of Cullen sign and Grey Turner sign. Rev Esp Enferm Dig 2024;116:280. doi: 10.17235/reed.2023.9655/2023
2. Wong E, Sayed-Hassen A. Grey Turner's sign in severe acute pancreatitis. Clin Case Rep 2021;9:e04313. doi: 10.1002/ccr3.4313
3. Carnevale-Maffé G, Modesti PA. Out of the blue: the Grey-Turner's sign. Intern Emerg Med 2015;10:387-8. doi: 10.1007/s11739-014-1178-0
4. Gachabayov M. Obstructive Uropathy Secondary to Missed Acute Appendicitis. Case Rep Surg 2016;2016:4641974. doi: 10.1155/2016/4641974
5. Guldner GT, Smith T, Magee EM. Grey Turner Sign. Treasure Island, FL: StatPearls Publishing; 2025.
6. Hodge BD, Kashyap S, Khorasani-Zadeh A. Anatomy, Abdomen and Pelvis: Appendix. Treasure Island, FL: StatPearls Publishing; 2025.
7. Seyedhosseini-Davarani S, Akhgar A. Atypical Presentation of Acute Appendicitis: A 32-year-old Man with Gastroenteritis Symptoms; an Educational Case. Adv J Emerg Med 2017;2:e21. doi: 10.22114/AJEM.v0i0.32
8. Echevarria S, Rauf F, Hussain N, Zaka H, Farwa UE, Ahsan N, et al. Typical and Atypical Presentations of Appendicitis and Their Implications for Diagnosis and Treatment: A Literature Review. Cureus 2023;15:e37024. doi: 10.7759/cureus.37024
9. Ganguly D, Chandra A. Cullen Sign and Grey Turner Sign in Acute Pancreatitis. Am J Med 2022;135:e437-8. doi: 10.1016/j.amjmed.2022.07.019
10. Kashiwagi R, Shimamura Y, Imamura K. Uncommon etiology of Cullen's sign and Grey Turner sign. J Gen Fam Med 2022;23:282-3. doi: 10.1002/jgf2.533

Authors Contribution:
AAA: Study design, final approval, accountable for all aspects of the study.
ADAA: Drafting, interpret intellectual content.
MMAK: Data acquisition, analysis and study design.