



# A Rare Case Report Of Acute Appendicitis With Non Necrotizing Granulomatous Inflammation

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## Abstract

Granulomatous appendicitis (GA) is an uncommon cause of acute abdomen and may be presented as appendicular mass. It is defined as the presence of granulomatous inflammation in the appendix. Granulomatous Appendicitis can be presented as appendicular mass in diagnostic evaluation or operation. The confirmatory diagnosis is made by histopathology and is characterized by the presence of non-necrotizing epithelioid granuloma, and mucosal ulcerations [6,7]. We are presenting a case of 49 years old male patient presented with acute appendicitis with non necrotizing granulomatous inflammation because of its rarity.

Key words: Granulomatous appendicitis, histopathology, non necrotizing granulomas

## Introduction

Granulomatous appendicitis (GA) is an uncommon cause of acute abdomen and may be presented as appendicular mass. It is defined as the presence of granulomatous inflammation in the appendix. Its etiology can be infectious, i.e., Mycobacterium tuberculosis, Yersinia pseudotuberculosis, parasites, and fungal infection, or noninfectious, i.e., Crohn's disease, sarcoidosis or in the case of tumors, or idiopathic [1, 2]. Acute granulomatous appendix is found in 0.14%–2.3% of all appendectomies.[3]GAs are usually presented as acute appendicitis, and usually detected as an incidental finding during operation and pathological evaluation of appendix. Sometimes it can't be predicted with simple laboratory and diagnostic imaging like ultrasound; however its consequence after surgery may differ from acute appendicitis [4, 5]. The confirmatory diagnosis is made by histopathology and is characterized by the presence of non-necrotizing epithelioid granuloma, and mucosal ulcerations [6,7].We are presenting a case of 49 years old male patient presented with acute appendicitis with non necrotizing granulomatous inflammation because of its rarity.

## Case report

A 49 years old male patient presented to OPD of surgery department at Dheeraj General hospital, Waghodia, Baroda, Gujarat with history of right lower quadrant abdominal pain since three-days. The pain began in the periumbilical region and then localized to the right lower quadrant. It was associated with low grade fever. Past medical history and family history were not significant. On general examination patient appeared in distress due to pain but vitals were stable. On per abdominal examination ,there was right lower quadrant tenderness with positive Rovsing sign and positive rebound tenderness without rigidity or palpable masses. Rest all systemic examinations were normal. Laboratory investigations on admission showed raised WBC count with neutrophillia. All other hematological and serological tests were within normal limit. The patient was admitted in Male Surgical Ward(MSW) as a case of acute appendicitis and appendicectomy was planned. He was kept nothing by mouth (NBM) for eight hours before surgery. Before surgery a COVID-19 polymerase chain reaction (PCR) test was performed, and the result was negative. Laparoscopic appendectomy was performed under general anesthesia and the surgical specimen was sent to Pathology department for histopathology examination. In Histopathology we received appendicectomy specimen with attached mesentery[Photograph 1]. The sections from appendix showed hyperplastic lymphoid follicles with mucosal erosion.The submucosa showed inflammatory infiltrates in the form of neutrophils, lymphocytes and plasma cells. Few ill defined granulomas were seen in the submucosa comprising of lymphocytes and histiocytes. Accompanying giant cell reaction was noted but no central necrosis was seen.[ Photograph 2,3] No firm evidence of inflammatory bowel disease was noted in the examined material. The periodic acid-Schiff (PAS) and Ziehl-Neelsen (ZN) stains for fungal elements as well as the acid-fast bacillus (AFB) stain, were performed and all were negative.

## Discussion

Acute appendicitis is an acute inflammation of the vermiform appendix and considered as medical emergency. There are various types of appendicitis on histopathological examination e.g. acute, chronic, acute on chronic, ulcerative, granulomatous and gangrenous. Granulomatous Appendicitis can be presented as appendicular mass in diagnostic evaluation or operation. But differentiation of Granulomatous Appendicitis from tumor can be challenging with macroscopic appearance in the operation. Delayed appendectomy performed after conservative management of a perforated appendicitis is also related to marked granulomatous features, with a Crohn-like transmural inflammation pattern. Interestingly, this pathologic aspect is rare in acute appendectomies.[8] Many reports describe the association of granulomatous inflammation of the appendix and Crohn's disease, which can manifest in one of two types: (1) appendiceal Crohn disease, in which inflammation is limited to the appendix; and (2) appendiceal involvement of Crohn's disease, in which inflammation spreads to the appendix in patients with ileal/cecal involvement [9]. The presentation of granulomatous appendicitis mimics the presentation of acute appendicitis with an ordinary range of inflammation. Patients typically present with fever, nausea, vomiting, anorexia, abdominal pain (periumbilical initially localizing to the right inferior quadrant), and leukocytosis. . Additionally, a detailed history should be taken to rule out sarcoidosis (pulmonary symptoms, skin changes, uveitis, along with others) and inflammatory bowel disease (diarrhea bloody/watery, abdominal pain, nutritional deficiency signs, extraintestinal manifestations, etc.). Physical examination should be tailored to identifying signs specific to acute appendicitis, and other features that could indicate underlying diseases, as mentioned above, should be noted. But final diagnosis can be made only after histopathological examination. Histopathology is characterized by the presence of nonnecrotizing granulomas consisting of epithelioid and multinucleated giant cells as well as inflammatory infiltrates [10]. Additional diagnostic investigations should be aimed at identifying underlying etiologies. For instance, specific diagnostic tests for appendicular tuberculosis include acid-fast stain (AFB), tissue culture, tissue PCR, purified protein derivative (PPD) test, and interferon-gamma release assays (IGRAs). Periodic acid-Schiff (PAS) stain can be used for the detection of fungal elements.

## Conclusion

Granulomatous appendicitis is a rare subtype of appendicitis with multiple possible etiologies including infectious and systemic diseases. The final diagnosis is always made through histopathological examination of the surgical specimen. Although appendectomy is a curative treatment for granulomatous appendicitis, regular follow up and search for the underlying cause is mandatory.

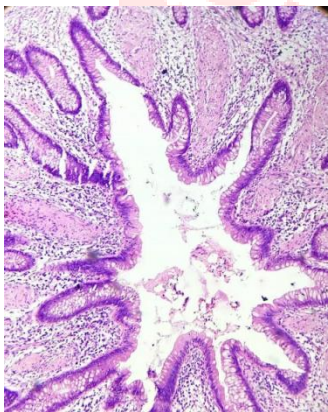
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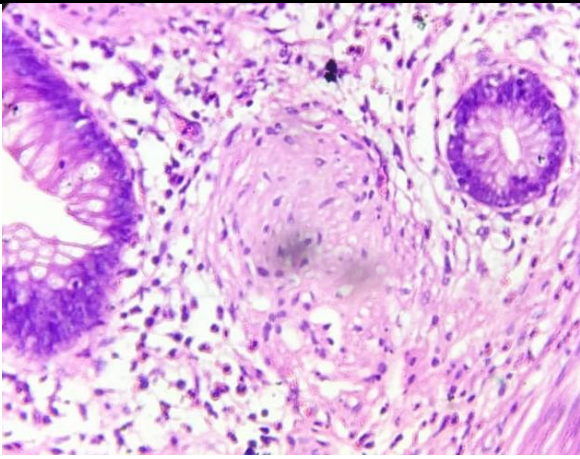
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Photograph 1 showed gross appearance of appendectomy specimen



Photograph 2 showed acute appendicitis with neutrophilic inflammatory infiltrate [H&E stain,10 x]



Photograph 3 showed noncaseating granuloma with lymphoplasmacytic infiltration[H&E stain,40 x]

