Reviewer’s report

Title: Primary gastric actinomycosis: Report of a case diagnosed in a gastroscopic biopsy

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Reviewer: Sergio Morini

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The Authors present a case report of Primary gastric actinomycosis diagnosed by microscopic evaluation of endoscopic biopsy specimens in a 87-year-old Saudi male. This type of diagnosis of primary gastric Actinomycosis based on gastric biopsy rather than resection specimen is very rare and only one case have been reported in the literature previously.

Based on the case reported, the Authors suggest that primary gastric actinomycosis, although representing a rare event, should be considered in the differential diagnosis when diffuse gastric wall thickening and submucosal tumor-like or infiltrative lesions are observed radiologically and gastroscopically. Moreover, the presence of pigmented inflammatory exudate should induce to perform appropriate stains to reveal the presence of possible microorganisms as causative agents.

The question arose from this case report is of interest, and the laboratory diagnosis accomplished by microscopic evaluation of gastroscopic biopsy specimens is well done.

Nevertheless there are some major points that need to be addressed. The case is presented in a confused and repetitive manner, and should be rewritten. Doubts remain particularly in the diagnostic process and in the attribution of the entire symptomatology to Actinomycosis: a different underlying disease with a the possible over-infection should be taken into consideration and discussed.

Major revision

1. The diagnostic path is confusedly reported and leaves some doubts.
Above all, it is not clear:
- Why two gastroscopies were performed?
- What were the execution times of gastroscopy and radiology?
- When did antibiotic therapy begin, and what was the maintenance therapy?
- Treatment for actinomycosis is long lasting and antibiotics recommended are benzylpenicillin and as a second choice tetracycline or macrolide. The authors should explain why and how long they continued the quinolone in combination with metronidazole.
- What is the follow up of the patient?
2. The main point is that the authors attribute to infection with actinomycosis all the patient's symptoms, and hence the diagnosis of primary gastric actinomycosis. However, many other factors should be taken into consideration in this case study to rule out infection with actinomycosis is an over-infection concomitant with another principal organic disease.

a) What drug therapy the patient was doing before admission? As the Authors report, the use of drugs may be involved in the pathogenesis of both ulcerative lesions, and obstruction. This point should be clarified.

b) Based on the above CT-scan, properly non-infectious etiology was suspected, possibly adenocarcinoma or lymphoma. However, it is not reported a histological diagnosis on biopsies of the body and of the pylorus. How can the Authors exclude a neoplastic disease with ulcerations and bacterial over-infection?

c) Moreover, how can the Authors rule out the presence of atrophic gastritis, which may have frequent bacterial over-infections?

d) High levels of lipase and amylase are reported: this could indicate acute pancreatitis that can give a paralytic ileus. The intestine is also distended, as from paralysis (see CT-scan). This case should be assessed and discussed as an alternative to obstruction by diffuse infiltrating infection with actinomycosis.

e) The follow-up data are needed to exclude the presence of other underlying disease (tumor or inflammatory) concomitant with the infection.

3. I would suggest to shorten this case report in order to better strengthen the findings and conclusions. Mainly, the Discussion session (pages 6 to 9) is not well organized and needs to be rewritten. In particular, there is a missing link between the different sentences in the Discussion and it needs to be improved to make easier its readability.

4. Page 6, lines 129-131. Authors state: “Culturing of gastric contents following the second gastroscopy, yielded only streptococcus viridians with no Actinomyces identified. However, no Actinomyces-specific culture was performed”. Cultures have been performed to try to isolate bacterial species, but only viridans streptococci have been found, with no isolation of Actinomyces. Nevertheless, it has been also stated that Actinomyces-specific cultures have been not performed. What does it mean? What type of cultures should be set up to recover Actinomyces? Since this microorganism a strictly anaerobic it is necessary to culture specimens under anaerobic conditions. Did the Authors set up anaerobic cultures? Please clarify it.

5. Actinomyces was not found by culture methods, but only by microscopic evaluation of biopsy specimens. Although in these cases it is frequent the lack of isolation of Actinomyces spp., the Authors should discuss a little more what they suggest to do. Do they encourage to set up cultures anyway?

6. Page 6, line 130, page 9 line 189, page 9, line 194. “Streptococcus viridians”. Viridans (not “viridians”!) streptococci represent a heterogeneous group of organisms that are generally considered as commensals in humans, colonizing
the gastrointestinal and genitourinary tracts, and the oral mucosa. They include all alpha hemolytic (and gamma hemolytic) streptococci, that are, today, classified into 6 major groups. Indeed, they are aerobic/anaerobic facultative bacterial species, and for this reason I would suggest to rephrase the sentence on page 9, line 189 (“Streptococcus viridans, another anaerobic endogenous…”). This is a major point that have to be addressed and corrected!

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.