



Perforated Diverticulosis Complicated with Actinomycosis and Presented as Pelvic Malignancy

Author

Tariq Rasheed, MD

Address: 49-32 Utopia Pkwy, Fresh Meadows, Queens, Newyork

Cell number: 347-206-1909

Abstract

A 48-year-old nonsmoker female with no significant past medical history is admitted to the hospital with lower abdominal pain, fatigue, yellow vaginal discharge and unintentionally weight loss. On physical examination there was a palpable mass extending from supra-pubic to supra-umbilical area and significant foul-smelling vaginal discharge. Computerized tomography of Pelvis revealed a mass like structure but biopsy showed acute inflammatory process with smooth muscle proliferation and fibro-adipose tissue infiltrated with histiocytes. Pathology revealed colonies of Actinomycetes.

Introduction

Actinomycetes are prominent among the normal flora of the oral cavity but less prominent in the lower gastrointestinal tract and female genital tract. Herein, we present a case of middle age female who presented with severe anemia and images showed mass concerning about Uterine/Cervical cancer. Further evaluation including laparotomy revealed intra-abdominal Actinomycosis.

Case Report

The present case report is about a 48-year-old female with no significant past medical history who presented with fatigue, and lower abdominal pain, unintentionally weight lost and yellowish vaginal discharge. Physical examination was remarkable for a palpable mass extending from supra-pubic to supra-umbilical area and vaginal

examination remarkable for foul-smelling vaginal discharge. Initial laboratory studies indicated Hemoglobin 5.8 mg/dl and white blood counts 15,000/ μ L. Computerized tomography of Abdomen/Pelvis CT with contrast which demonstrating an infiltrative process or mass like structure involving the pelvis measuring 10 \times 12 \times 6 cm (figure 1). The initial impression was Gynecological cancer which could be uterine/cervix/ovarian cancer. However, Pap-smear was negative. Biopsy was obtained which showed acute inflammatory exudates fragments of benign appearing smooth muscle proliferation and fibro-adipose tissue infiltrated with histiocytes.

The decision for exploratory laparotomy was made which revealed a large pelvic abscess (figure). The surgery resulted in modified radical hysterectomy, resection of left and right tubo-ovarian abscess complexes, recto-sigmoid

resection with end-sigmoid colostomy and Hartmann's pouch, and ileo-colic resection with a primary anastomosis. Pathology examination revealed a segment of colon with perforated diverticulosis and a tubo-ovarian complex with acute and chronic inflammations, granulation tissue formation and bacterial colonies morphologically suggestive of *Actinomyces*. Patient started on Intra-venous Penicillin-G. After 4 weeks, CT abdomen/Pelvic repeated which showed post-surgical changes and decreased in size of abscess/fluid collection.

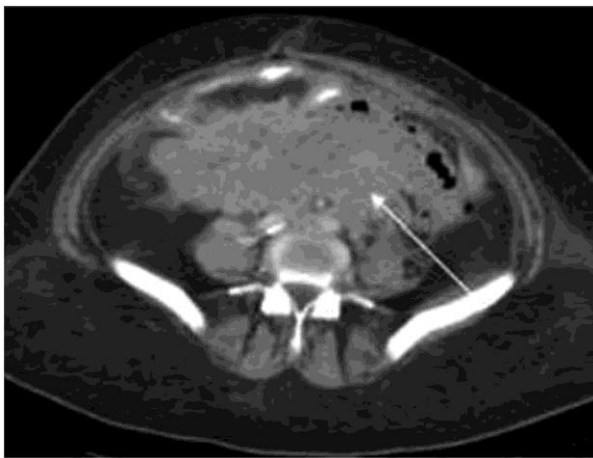


Figure 1: Computerized tomography of Abdomen /Pelvis CT with contrast which demonstrating an infiltrative process or mass like structure involving the pelvis measuring 10×12×6 cm

Discussion

Actinomyces are prominent among the normal flora of the oral cavity but less prominent in the lower gastrointestinal tract and female genital tract. Because these microorganisms are not virulent, they require a break in the integrity of the mucous membranes and the presence of devitalized tissue to invade deeper body structures and to cause human illness.

Furthermore, actinomycosis is generally a polymicrobial infection, with isolates numbering as many as 5-10 bacterial species. Establishment of human infection may require the presence of such companion bacteria, which participate in the production of infection by elaborating a toxin or enzyme or by inhibiting host defenses. These

companion bacteria appear to act as copathogens that enhance the relatively low invasiveness of actinomycetes. Specifically, they may be responsible for the early manifestations of actinomycosis and for treatment failures.

Once infection is established, the host mounts an intense inflammatory response (ie, suppurative, granulomatous), and fibrosis may then follow. Infection typically spreads contiguously, frequently ignoring tissue planes and invading surrounding tissues or organs. Ultimately, the infection produces draining sinus tracts. Hematogenous dissemination to distant organs may occur in any stage of actinomycosis, whereas lymphatic dissemination is unusual.

Actinomycosis of the abdomen and pelvis accounts for 10-20% of reported cases. Typically, these patients have a history of recent or remote bowel surgery (eg, perforated acute appendicitis, perforated colonic diverticulitis following trauma to the abdomen) or ingestion of foreign bodies (eg, chicken or fish bones), during which actinomycetes are introduced into the deep tissues. The ileocecal region is involved most frequently, and the disease typically presents as a slowly growing tumor. Diagnosis is usually established postoperatively, following exploratory laparotomy for a suspected malignancy. Involvement of any abdominal organ, including the abdominal wall, can occur by direct spread, with eventual formation of draining sinuses.

Pelvic actinomycosis most commonly ascends from the uterus in association with intrauterine contraceptive devices (IUCDs). In such cases, an IUCD has been in place for an average of 8 years. Actinomycosis is rare. During the 1970s, the reported annual incidence of actinomycosis in the Cleveland area was 1 case per 300,000 persons. Improved dental hygiene and widespread use of antibiotics for various infections have probably contributed to the declining incidence of this disease. Actinomycosis occurs worldwide, with likely higher prevalence rates in areas with low socioeconomic status and poor dental hygiene. The availability of antibiotics has greatly

improved the prognosis of all forms of actinomycosis. At present, cure rates are high, and neither deformity nor death is common.

A 48-year-old female with no significant past medical history who presented with fatigue, and lower abdominal pain, unintentionally weight lost and yellowish vaginal discharge. Physical examination was remarkable for a palpable mass extending from supra-pubic to supra-umbilical area and vaginal examination remarkable for foul-smelling vaginal discharge. Initial laboratory studies indicated Hemoglobin 5.8 mg/dl and white blood counts 15,000/ μ L. Computerized tomography of Abdomen/Pelvis CT with contrast which demonstrating an infiltrative process or mass like structure involving the pelvis measuring 10×12×6 cm (figure).

The initial impression was Gynecological cancer which could be uterine/cervix/ovarian cancer. However, Pap-smear was negative. Biopsy was obtained which showed acute inflammatory exudates fragments of benign appearing smooth muscle proliferation and fibro-adipose tissue infiltrated with histiocytes. The decision for exploratory laparotomy was made which revealed a large pelvic abscess. The surgery resulted in modified radical hysterectomy, resection of left and right tubo-ovarian abscess complexes, recto-sigmoid resection with end-sigmoid colostomy and Hartmann's pouch, and ileo-colic resection with a primary anastomosis.

Pathology examination revealed a segment of colon with perforated diverticulosis and a tubo-ovarian complex with acute and chronic inflammations, granulation tissue formation and bacterial colonies morphologically suggestive of *Actinomyces*. Patient started on Intra-venous Penicillin-G. After 4 weeks, CT abdomen/Pelvic repeated which showed post-surgical changes and decreased in size of abscess/fluid collections.

This case represents an abdominal actinomycosis infection that was confounded by it mimicking with malignancy. As with many other cases, the true diagnosis was not made until after pathological studies were completed. Typically,

abdominal actinomycosis is low on the differential list because it is not common and mimics many other diseases. In this case, CT findings were highly suspicious of malignancy. However, diagnosis was finally changed to actinomycosis on completion of pathological studies.

Differential diagnosis

Based on the initial clinical and radiological findings of lower abdominal pain, weight loss, leucocytosis and fatigue the initial diagnosis was malignancy. However, after biopsy the differential diagnosis included malignancy, Crohn's disease and abdominal actinomycosis. The treatment of malignancy, Crohn's disease and abdominal actinomycosis can include surgical resection and anastomoses. However, conservative medical treatment can be used for Crohn's disease and abdominal actinomycosis if the diagnosis is made preoperatively.

Treatment

Treatment of abdominal actinomycosis depends on whether the diagnosis is made preoperatively or postoperatively. The recommended nonsurgical treatment for abdominal actinomycosis is intravenous penicillin G for 2–6 weeks followed by oral penicillin or amoxicillin for 6–12 months. For those allergic to penicillin, alternatives include tetracycline, erythromycin or clindamycin. Surgery is reserved for patients who do not respond to initial antibiotic therapy or for patients in whom there is severe spread of the disease as noted by fistulas, necrosis or abscesses. Surgery is also indicated if malignancy cannot be ruled out. Postsurgical treatment includes long-term penicillin therapy. Mortality is extremely rare and favourable outcomes are seen in 90% of cases treated with combined medical and surgical therapy.

Outcome and follow-up

The patient made a full recovery from surgery. She will need follow-up with both surgical oncology and infectious disease for medical

management of abdominal actinomycosis. Treatment with oral Unasyn—ampicillin and sulbactam—for 6–12 months should be sufficient to treat the actinomycosis infection. Appropriate measures reduce mortality rates to <10%, and also lower the risk of recurrences.

Learning Points

- Abdominal actinomycosis can cause bowel perforation due to infection.
- A preoperative diagnose can result in non-surgical management, which is long term intravenous Penicillin.
- We are able to make a preoperative diagnose in less than 10% cases.
- Abdominal actinomycosis should be in the differential diagnosis for lower abdominal pain with leukocytosis. Other causes may include malignancy, crohn's disease, appendicitis.

Acknowledgement

Dr Alkhawam

Email: hassan.alkhawam@mssm.edu

References

1. Harris LA, Decosse JJ, Dannenberg A. Abdominal actinomycosis: evaluation by computed tomography. *Am J Gastroenterol* 1989;84:198–201
2. Karateke F, Ozyazici S, Menekşe E, *et al* Unusual presentations of actinomycosis; anterior abdominal wall and appendix: report of three cases. *Balkan Med J* 2013;30:315-17
3. Ferrari TC, Couto CA, Murta-Oliveira C, *et al*. Actinomycosis of the colon: a rare form of presentation. *Scand J Gastroenterol* 2000;35:108–9.
4. Hamid D, Baldauf JJ, Cuenin C, *et al*. Treatment strategy for pelvic actinomycosis: case report and review of literature. *Eur J Obstet Gynecol Reprod Biol* 2000;89:197–200.
5. Brenner RW, Gehring SWJ. Pelvic actinomycosis in the presence of an endocervical contraceptive device. *Obstet Gynecol.* 1967;29:71–73.
6. Henderson SR. Pelvic actinomycosis associated with an intrauterine device. *Obstet Gynecol.* 1973;41:726–732.
7. Fiorino AS. Intrauterine contraceptive device-associated actinomycotic abscess and *Actinomyces* detection on cervical smear. *Obstet Gynecol.* 1996;87:142–149. doi: 10.1016/0029-7844(95)00350-9.
8. Lee YC, Min D, Holcomb K, Buhl A, DiMaio T, Abulafia O. Computed tomography guided core needle biopsy diagnosis of pelvic actinomycosis. *Gynecol Oncol.* 2000;79:318–323. doi: 10.1006/gyno.2000.5994.
9. Lely RJ, van Es HW. Case 85: pelvic actinomycosis in association with an intrauterine device. *Radiology.* 2005; 236: 492–494. doi: 10.1148/radiol.2362031034.
10. Hawnaur JM, Reynolds K, McGettingan C. Magnetic resonance imaging of actinomycosis presenting as pelvic malignancy. *Br J Radiol.* 1999;72:1006–1011.
11. Baird AS. Pelvic actinomycosis: still a cause for concern. *J FamPlannReprod Health Care.* 2005;31:73–74. doi: 10.1783/0000000052973004.
12. Tou SIH, David G, Thomas EA, Schneider HJ. Unusual cause of a frozen pelvis. *Gut.* 2006;55:990,1011. doi: 10.1136/gut.2005.080960.