Actinomycosis involving abdominal wall - an unusual site: A case report

Pratik B. Sheth1*, Neela V. Bhuptani 2, Jigisha Jalu3
1,2,3Department of D.V.L., P.D.U. Govt. Medical College, and Hospital, Rajkot

INTRODUCTION
Actinomycosis is a chronic, suppurative, granulomatous disease caused by organisms of the family Actinomycetaceae, which are gram-positive, microaerophilic or anaerobic, nonsporing, nonacid-fast filamentous bacteria and characterized by the presence of multiple draining sinuses discharging sulphur granules which are the microcolonies of these agents. [1] Most common type causing disease in humans is Actinomycosisisraelii. This organism is a commensal of the human mouth and intestinal tracts and therefore the infection is acquired endogenously. [2] Actinomycosis differs from mycetoma in being caused by endogenous and anaerobic agents, and in having no tendency to be confined to the extremities. Five main clinical types have been recognized namely cervicofacial, thoracic, abdominal, primary cutaneous and pelvic[2] of which cervicofacial is the commonest type. Here we report a rare abdominal form of actinomycosis.

CASE REPORT
A 45 year old female presented with history of multiple nodules and sinuses over right lower abdomen extending to right groin associated with mild pain since two years [Figure 1]. Initially patient had asymptomatic darkening of skin over the abdominal region followed by sinuses with recurrent discharge along with grains since 2 years for which she had consulted a General Physician. Past history of right hemicolectomy for appendicular abscess before 15 years was present.

On examination there was slight discoloration over the sinuses with palpable subcutaneous nodules. There was oozing of serous fluid followed by discharge of grains from one of the sinuses. The grains were pale yellow and about 2-3 mm in size with lobulated surface. There was no lymphadenopathy and the systemic examination was unremarkable. On clinical grounds actinomycosis was suspected and the patient was investigated accordingly. Initial investigations included complete hemogram, liver function tests, renal function tests, random blood sugar, ultrasonography of abdomen , chest X-ray and mantoux test, biopsy from one of the nodules, crush smear of grain for Gram’s stain, PAS stain and ZiehlNeelson stain (for Nocardia) and culture. The investigations revealed Hb – 10.2 gm/dl, 77% neutrophils in differential count, ESR - 50 mm/1st hour, USG – fatty changes along with a 7.5 x 7 cm size hypoechoic cystic mass in right lobe of liver suggesting a simple hepatic cyst. The histopathology report showed dermal heavy infiltration of lymphocytes, plasma cells, neutrophils and few pigment containing macrophages along with marked vascular proliferation and congestion. H & E stained section showed SplendoreHoeplli phenomenon [Figure 2(A)]. PAS staining was positive [Figure 2(B)]. The gram stained smear showed gram positive filaments suggestive of actinomycetes thus confirming our suspected diagnosis of actinomycosis [Figure 3]. The ZiehlNeelson stain and Mantoux test were negative. Culture was negative for actinomycetes elements.

A surgical opinion was taken for the level of extension of sinus tracts and for the concomitant hepatic cyst. An ultrasonography was reperformed to see the extent of tracts which were not extending upto the liver and were confined to abdominal wall only[Figure 4]. USG guided FNAC from hepatic cyst was done. The aspiration fluid cytology and

ABSTRACT
Actinomycosis is a systemic mycosis presenting as multiple draining sinuses, however sinuses affecting abdominal wall is a rare finding. We report a case of 45 year old female having actinomycosis of abdominal wall presenting as nodules with discharging sinuses and concomitant hepatic cyst.

Keywords: Actinomycosis, abdominal wall, draining sinuses, PAS Stain

*Corresponding Author
Dr. Pratik B. Sheth,
Department of D.V.L., P.D.U.
Govt. Medical College & Hospital,
Rajkot
Email: shethpratik612@gmail.com
Actinomycosis involving abdominal wall - an unusual site

Cultures were unremarkable confirming its benign and non-infective nature. The patient was put on rifampicin 450 mg once a day and showed significant improvement.

**Figure 2:** (A) H & E staining of the grain shows Splendore-Hoeppli phenomenon; (B) PAS stain positive grain.

**Figure 3:** Gram positive filamentous actinomycetes.

**Figure 4:** USG showing sinus tract not extending beyond abdominal wall.

**DISCUSSION**

Actinomycete is a gram-positive, slow growing, non-acid-fast, anaerobic, filamentous bacterium that requires specific incubation of fresh material and takes one week to grow. The culture is negative in 76% of cases. Diagnosis is provided by anatomicopathology illustrating characteristic sulphur granules containing filaments in 50% of the cases. This was in accordance with our case where gram’s stain was positive but the culture was negative.

Abdominal actinomycosis is uncommon. The ileo-caecal site is the most frequently affected in patients with abdominal actinomycosis. It usually begins in the appendix or caecum and is manifested either as appendicitis or a slow-growing mass with constitutional disturbance. Our patient had a history of right iliac fossa mass along with features of obstruction. Extension to the liver with resulting jaundice is frequent. Similarly extension to the ovaries, kidneys, bladder or spine may occur. The organism may extend into the abdominal wall with the resultant sinus tracts appearing on the skin surface. Blood spread to distant organs is however rare. Our patient had draining sinuses over abdominal wall in right iliac fossa. In many cases, abdominal-pelvic actinomycosis is associated with an intrauterine contraceptive device (IUCD). Our patient however had no history of IUCD use. Some predisposing events are appendicitis, diverticulitis, perforated gastric ulcers, previous bowel surgery, cholecystectomy, pancreatitis, endoscopic manipulation, trauma and immunosuppression. A history of bowel surgery in form of right hemicolectomy was present in our case. Because the clinical presentation is so variable, the disease frequently mimics other chronic inflammatory intra-abdominal conditions or even malignancy. In fact, an accurate diagnosis is not often established pre-operatively in a significant number of cases. CT, ultrasound and MRI are able to confirm the presence of an abscess or pseudo-tumor mass but not distinguish between neoplasm, endometriosis, pelvic-peritonitis, a bowel inflammatory disease such as Crohn’s disease, sigmoiditis, complicated appendicitis or tuberculosis. The treatment of choice is proper surgical drainage at the primary site of infection. If a soft tissue tumor is suspected, a wide primary resection including the surrounding tissue is sometimes inevitable. The abdominal wall defect may be closed by prosthetic mesh if the abdominal wall defect is large and direct closure is impossible. Surgical treatment without antibiotic therapy is not always sufficient to achieve a cure for actinomycosis. When antibiotic therapy is combined with surgery, it is relatively simple to treat and the cure rate is more than 90%. The recurrence in our patient could have been resulted from inadequate antibiotics and/or inappropriate surgery. Our patient was treated with rifampicin 450 mg once daily before meals as it is known to be an effective drug for actinomycosis. The patient showed good response with complete cessation of discharge from the sinuses after 45 days of treatment. Treatment was further continued and there was significant regression of lesions after six months of therapy. Patient is under regular follow up with no signs of recurrence till date.

**REFERENCES**

2. Hay RJ, Adriaans BM. Bacterial infections. In: Burns T, Breathnach S, Cox N, Griffiths C,
Actinomycosis involving abdominal wall - an unusual site


