



Concomitant Actinomycosis & Tuberculosis in Long Standing Osteomyelitis

KEYWORDS

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Introduction:

Actinomycosis is a rare bacterial disease caused by actinomycetes species, usually *A. Israeli*. The purulent leakage via the sinus cavities contains "sulphur granules." Developed countries with good access to antibiotics and dental services usually have considerably lower incidences of actinomycosis, however it is not so in undeveloped countries.

Tuberculous osteomyelitis which does not involve a joint is uncommon and may fail to be diagnosed by an orthopaedic surgeon. Culture of TB bacteria is a confirmatory procedure. Although rare in western countries, tuberculous arthropathy is still a common problem in developing countries. Osteomyelitis abbreviated to OM.

Case report:

45 years housewife come with C/O oozy, foul smelling ulcer on left knee region, non-healing in spite of antibacterial treatment since one year. The ulcer was extending from knee up to shin on anterior & on calf region on posterior aspect. There is a deep sinus like ulcer at the centre of surrounding ulcer of size about 4x2x half inch, as shown in photo -1. She has H/O weight loss, weakness, anorexia & mild fever at evening. She is non-diabetic, non-hypertensive without peripheral vascular disease.

CBC & WBC count was normal except neutrophilia i.e. 78%. ESR was raised up to 35 mm. HIV test by Elisa was non-reactive. X-ray chest, USG-abdomen did not show any TB.

The surrounding tissue along with bone piece from ulcer sent for culture & sensitivity i.e. C&S. Actinomycet i.e. AM were isolated on enriched blood agar medium, which were sensitive to the treatment of antibiotics i.e., inj. amoxicillin + clavulanic acid = 625 mg. x12 hourly for two weeks, followed by Inj. cefoperazone 500 mg. plus (+) salbactam-500 mg. x12 hourly for two weeks. Tab. linezolid -600 mg. x 12 hourly was given for four weeks, right from the beginning.

The wound started drying, foul smelling ceased. Healing process was hastened as shown in photo -2. We continued the daily dressing. Meanwhile she was asymptomatic.

After improvement in healing for about two month, the wound again started oozing & ceased in healing. Patient again started evening fever, anorexia, weight loss. So we done PPD test, which was positive with a wheal of 15 mm within 48 hours.

So again we sent culture for bacteria on enriched blood agar

for actinomycet along with mycobacterium culture on 1)middle brook's & 2) Lowenstein-Jensen i.e. L J medium.

This time culture for bacteria including actinomycete was negative but surprisingly culture was positive for mycobacterium tuberculosis, confirmed by ZN staining method.

So she was put on anti-Koch's (AKT) treatment – 4 drug AKT i.e. Rifampicin, Ethambutol, Streptomycin & Pyrizinamide up to 6 months. After starting AKT patient was comfortable by improvement in weight gain, general condition, fever, malaise & appetite. The ulcer again started healing. We find significant reduction in size of ulcer within two months, as shown in photo -3

We repeated the C&S after about two months, this time it was negative for both organisms. The debridement of soft tissue was done. The bone grafting was performed after curettage of sequestrum. We continued AKT as advised by national revised tuberculosis program.

Discussion:

Bone and soft tissue attached to the bone after inflammatory changes is called as osteomyelitis i.e. OM. An incidence of actinomycosis i.e. is AM has been decreasing including India, because of improved hygiene & use of antibiotics.

Group A & B Streptococci, Staph-auros, Pseudomonas, Enterobacteria, Aspergillums fumigates & flavus, Chalara ellisii are common causes.^[1] Actinomycet & mycobacterium are amongst the rare causes.^[2]

Actinomycosis i.e. AM is caused by a gram positive anaerobic bacteria, genus actinomycetes is a rare infection now a days. *A. Israeli* is commonest strain & cervico-facial site is a commonest location.^[3]

AM species grow well in enriched media like brain-heart infusion, enriched blood agar & Thioglycollate broth. We identified colonies of AM formed by actinomycetes are white opaque with small, smooth, translucent domes with entire margins resembling like a molar tooth, as shown in inset of photo-4. Characteristic sulphur granules, stained with 1% methylene-blue solution & Gram-positive, beaded, branched, filaments confirmed the diagnosis of AM, as shown in the 'inset of' photo-b. The soft tissues are often involved presenting swelling and skin abscess. It is associated with general symptoms such as fever & weight loss as in this case.^[3]

After a positive clinical response of ulcer due to antibacterial treat-

ment for some months, she again became symptomatic as above with non-healing of ulcer, raised ESR, which made us to do tuberculin (PPD) test. Positive PPD test made us to send a culture for mycobacterium –TB. On inoculation in above media colonies grew at a shorter period of about two weeks confirming a strongly positive growth. Buff-yellow, rough & wrinkled colonies yielded M-TB, confirmed by Z-N staining.

The inference was that the AM was cured after antibiotics however concomitant TB infection was hidden. We suspect TB after injury as a focus of infection here since there was no any other focus of TB. [4]

Mycobacterium C & S is preferred to rule out resistance. Evaluation using a bone piece along with histological study, culture on middle brook's & LJ medium, is effective in diagnosing hidden osseous tuberculosis as in our case. [5]

After adding AKT, the ulcer healed almost at about three months. [6] AKT improved general condition of patient. Early diagnosis of TB-OM will certainly reduce the morbidity of this disease. [7]

In one study examination of 140 bone specimens only four patients had concomitant tuberculous OM with bacterial OM, proving as a rare infection. [5]

Actinomycosis is difficult to diagnose clinically, so isolation of the actinomycetes by C&S along with bone sample is necessary in cases as above. [8] Concomitant infection of actinomycosis with tuberculosis is rare, which requires a high index of clinical suspicion.



Photo-1: patient showing ulcer.



Photo -2: Healing ulcer after treatment of Actinomycosis.



Photo -3: Healing ulcer after treatment of Tuberculosis.



Photo -4: Colonies of actinomycete. Inset shows: Sulphur granules with branching filaments.

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