International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2015): 6.391

Actinomycosis of Thoracic Spine – A Rare Case

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Abstract: ***Introduction**: Actinomycosis is a chronic suppurative infection caused by Actinomyces species which is facultative, anaerobic gram positive bacteria, a commensal of the normal flora of the oropharynx. The most classical presentation of the disease is cervicofacial form accounting for half of the cases followed by thoracic, abdominopelvic and cerebral localization. Spinal actinomycosis is a rare event and the diagnosis is challenging because it mimics with other diseases like tuberculosis and malignancy. The isolation of pathogens is difficult as it requires specific procedures. **Case History**: We report a rare case of actinomycosis involving thoracic spine and resulting into paraplegia secondary to cord compression. **Conclusion**: Actinomycosis resulting into spinal abscess is a rare condition. The diagnosis is challenging because of difficulty in isolation of the organism and its clinical resemblance to other infections like tuberculosis and malignancy. For accurate diagnosis, a high degree of clinical suspicion should be kept in mind and appropriate techniques should be used for isolation of the organisms.*

Keywords: Actinomycosis,thoracic spine, paraplegia

1. Introduction

Actinomycosis is a slowly progressive suppurative infection caused by actinomyces species. Spinal actinomycosis is an exceptional condition causing diagnostic challenge because of its insiduous progress and clinical mimics to other infections like tuberculosis as well as malignancies. We report a rare case of actinomycosis involving thoracic spinal cord.

2. Case History

65 years old male patient presented with backache and breathlessness since 25 days followed by loss of power of both lower limbs, bladder and bowel incontinence. The patient was non alcoholic, immunocompetent and had no history of diabetes. MRI revealed spondylitis involving T4, T5 vertebral bodies (fig 1) The patient was diagnosed clinically as Pott's spine and had minimal pleural effusion.

CBC revealed neutrophilic leucocytosis.
Chest X ray showed bilateral pleural effusion.

Culture report of pleural fluids was sterile and curetted material was not sent for microbiological examination.

The para spinal abscess was drained and a bony fragment with granulation tissue was sent for histopathological examination.

Microscopy
Section from the curetted material revealed dead as well as viable bony trabeculae admixed with diffuse inflammatory infiltrate composed of lymphocytes, plasma cells, along with actinomycotic colonies.(fig2 &3) Gram stain revealed gram positive bacteria.(fig4) 20% Ziehl Nelson stain as well as PAS stain was negative. The diagnosis given was actinomycosis involving D4 and D5 vertebra.

3. Discussion

Actinomycosis is a rare chronic suppurative infection caused by gram positive anaerobic bacteria which are commensal in the oropharyngeal cavity, gastrointestinal and urogenital tract[1]. Actinomyces israelli was first isolated from lung abscess by Wolf and Israel. It is considered as an opportunistic pathogen in humans and belongs to normal flora of oral cavity. The risk factors for infection are immunocompromised patient, dental sepsis, abdominal surgery or use of intrauterine devices[2].The most common clinical presentation is cervicofacial (55%) followed by thoracic, abdominopelvic and cerebral form. Spinal involvement is exceptional and may occur after trauma or by hematogenous spread[3,4,5,6]. The disease progression in our patient was probably from primary lung infection caused by aspiration of oral flora resulting in the development of pleural effusion and subsequent paraspinal abscess formation. The differential diagnosis includes slow growing suppurative infectious processes including nocardiasis, tuberculosis, spondyloarthritis and primary and secondary malignancies. Unlike spinal tuberculosis,actibomycosis spares intervertebral discs[2]. The same observation was noticed in our case.

Microbiological diagnosis requires appropriate clinical specimens such as pus. Identification of species is difficult and the procedure relies on r RNA sequencing in tissues[4].

Actinomycosis are slowly growing and anaerobic bacteria and requires an anaerobic culture and extended growth for 14 to 21 days. The treatment is of long duration and antimicrobial therapy with surgery[3].

4. Conclusion

Actinomycosis resulting into spinal abscess is a rare condition. The diagnosis is challenging because of difficulty in isolation of the organism and its clinical resemblance to other infections like tuberculosis and malignancy. For accurate diagnosis, a high degree of clinical suspicion should be kept in mind and appropriate techniques should be used for isolation of the organisms.

References

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Figure 1: Compression fracture of T5 vertebra and pre and paravertebral collection, feature suggestive of spondylitis of infective etiology sparing disc

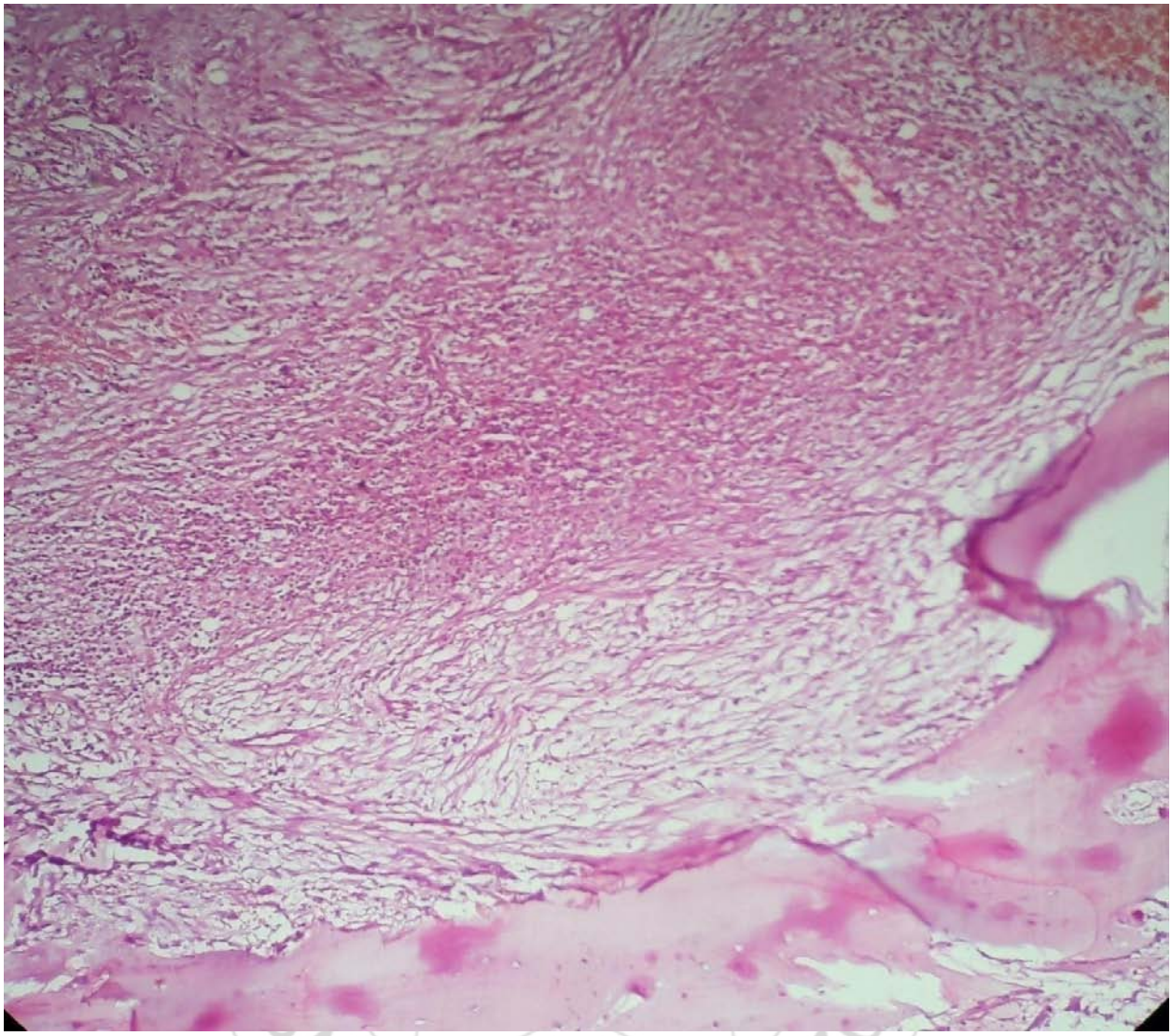

Figure 2: Viable and bony tissue along with chronic non specific inflammation (H&E100x)

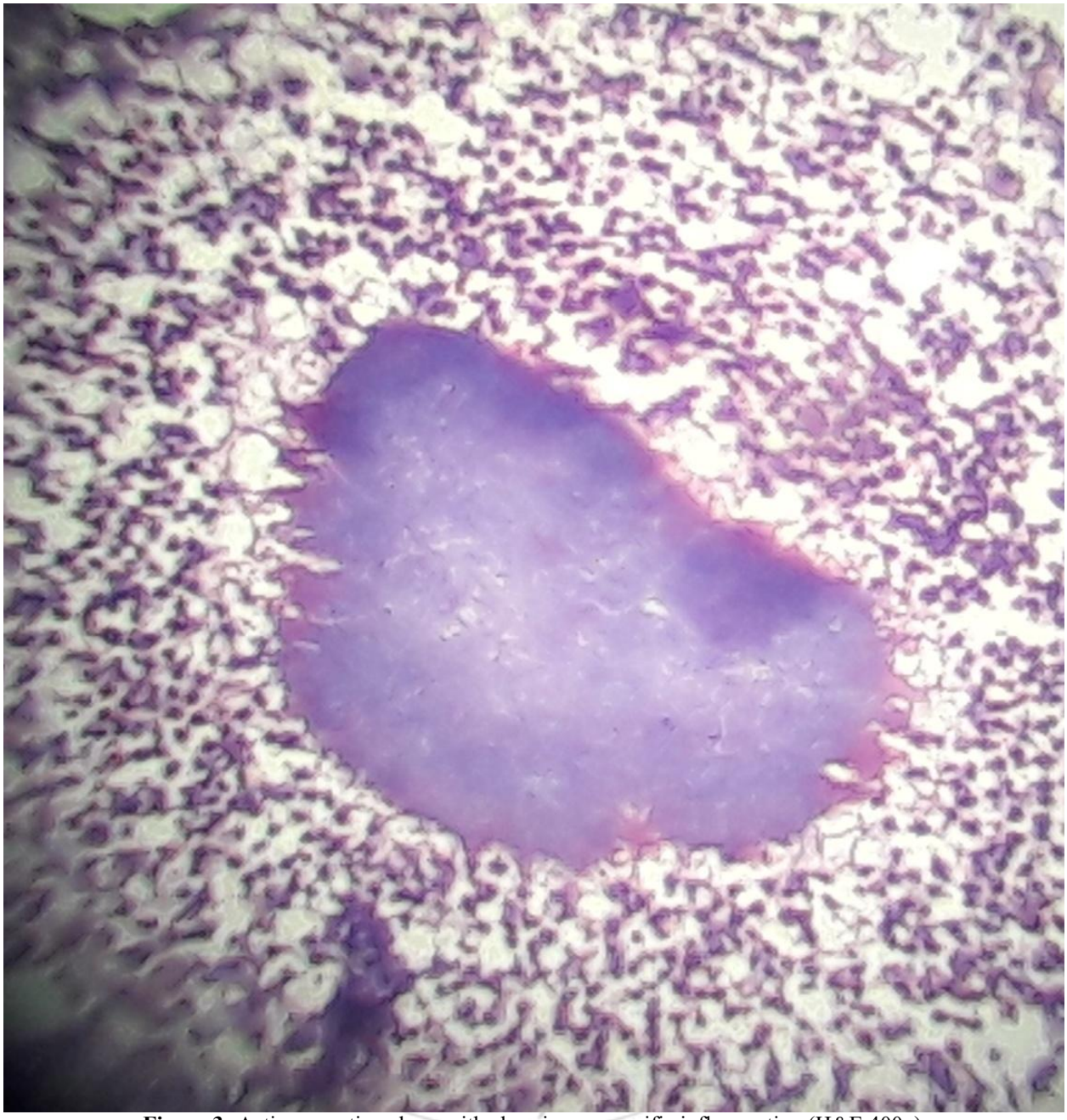

Figure 3: Actinomycotic colony with chronic non specific inflammation (H&E 400x)

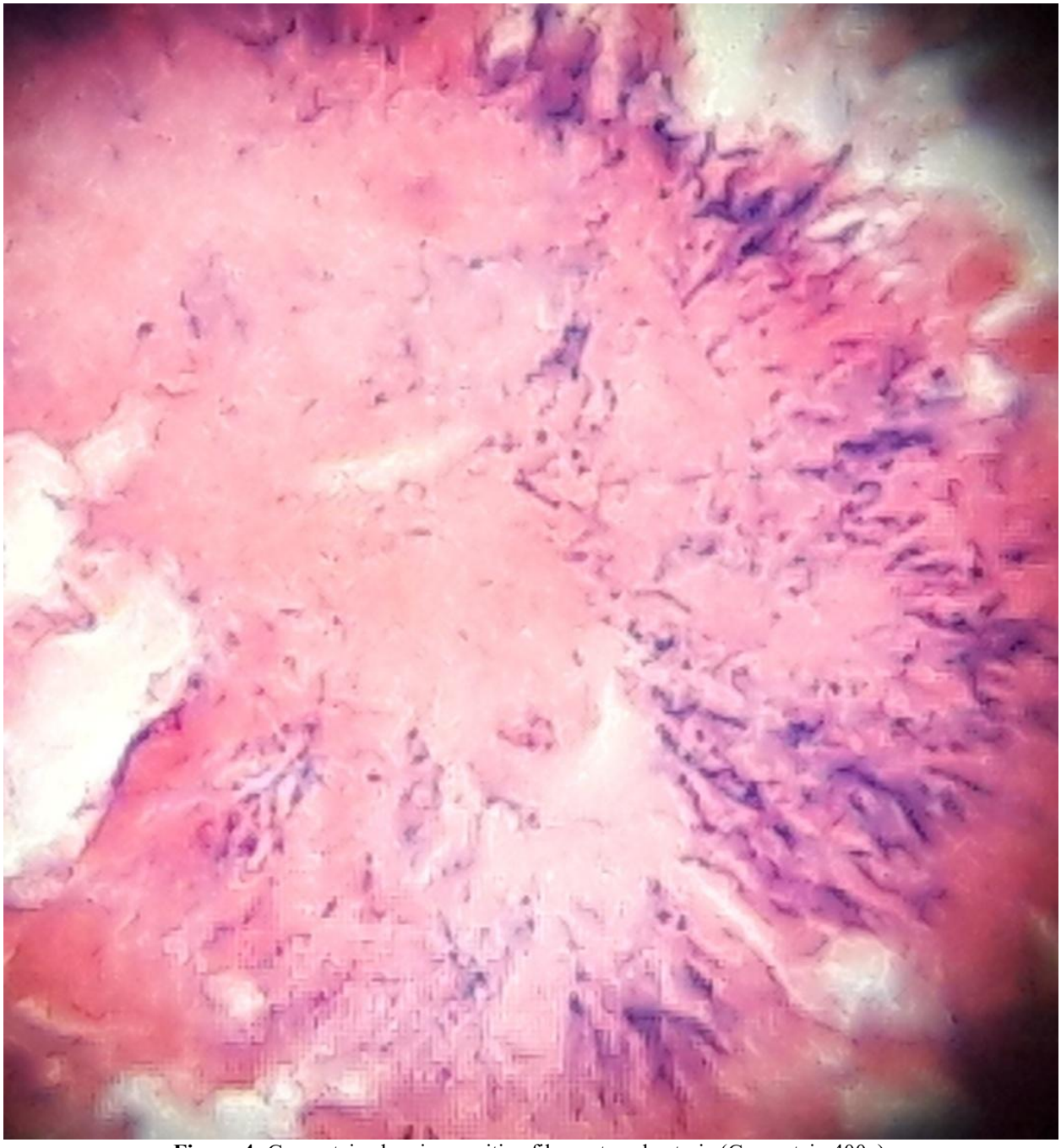

Figure 4: Gram stain showing positive filamentous bacteria (Gram stain 400x)