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RESEARCH ARTICLE

POTT'S DISEASE IN A YOUNG ADULT: CASE REPORT AND LITERATURE REVIEW

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Abstract

Pott's disease, also known as tuberculosis spondylitis is a rare extra-pulmonary Tuberculosis infection that affects the spine and is usually overlooked as one of the differential diagnoses of patients presenting with fever and back pain. Although it is a challenging diagnosis due to the decreasing incidence of TB, early diagnosis and recognition remain vital in order to prevent serious complications and provide the proper management for patients to have a better quality of life. We report a case of a 26-year-old man with TB spondylitis involving T10 to T12 thoracic vertebra of the spine with an abscess collection involving the psoas muscle.

Introduction:-

Pott's disease, also known as tuberculosis spondylitis, is a rare infection that affects the spine, resulting from an extra-spinal source of infection.

During the past decade, a total of 75,858 cases of TB were reported in the United States. Of these (3.7%) involved the spine only, with a median age of 51 and a slightly higher male to female ratio.[1]

Despite the decreasing incidence of TB worldwide and ongoing efforts to eradicate, it remains a health concern because it can result in serious morbidity and mortality.[2]

History and Examination:

Mr. V a 26-years old Kenyan gentleman previously healthy presented to the Emergency Department with multiple visits complaining of a ten days duration of Fever ranging from 38 to 40 degrees associated with abdominal discomfort, generalized body ache, fatigue, constipation of total seven days with multiple episodes of vomiting mainly of food contents. The patient denied a history of sexual affairs, intravenous drug use, or recent travel history. The patient did report typical proceeding symptoms of weight loss around 3-4kg/month, decreased appetite, night sweats, and dry cough. In further history taken, our patient gave a history of prolonged back pain for the last two years. An x-ray of his back was taken, and did not show any fracture. The patient was advised to do a Magnetic Resonance Imaging (MRI) but lost follow up. The pain was only managed with weak opioids analgesia.

On examination, the vitals for our patient on admission: blood pressure 111/62 millimeters of mercury (mmHg), heart rate 102 beats per minute , oxygen saturation 99% on room air, and a temperature of 38 C. the Patient was alert, conscious and oriented with GCS 15/15. Chest examination showed bilateral air en-try with no added sounds. Cardiovascular revealed normal first and second heart sounds. Abdominal ex-amination showed no scars, skin changes, or distention. The abdomen was soft and lax with tenderness on the right upper quadrant region with no

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signs of organomegaly—digital rectal examination was normal with no signs of melena. CNS examination was fully intact.

Lab investigations:
Complete blood count and metabolic panel were within normal ranges, and there was no abnormality detected with the initial laboratory workup, including peripheral blood smear except for the inflammatory markers c-reactive protein and erythrocyte sedimentation rate were raised. Liver function tests were also high, as shown in the table below.

LFT*
Total bilirubin 31.8
Direct bilirubin 18
ALP 222
GGT 180
AST 145
ALT 150

LFT= Liver function test, ALP= Alkaline phosphatase, GGT= Gammaglutamyl Transferase, AST= aspartate transferase, ALT= alanine transferase.

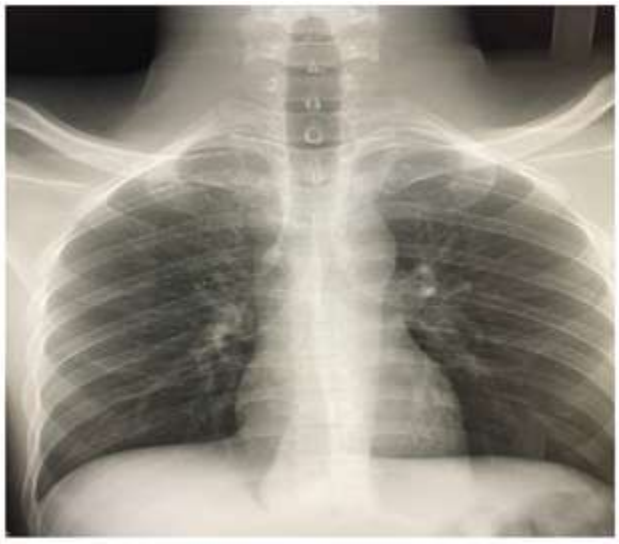

FIGURE1
CHEST X-RAY TAKEN ON ADMISSION
Showed increase in hilar markings .
With no infiltration ,consolidation and/or cavities.

FIGURE 2
Axial view of CT abdomen - lower thoracic : showing prevertebral collection extending inferiority involving right psoas muscle.

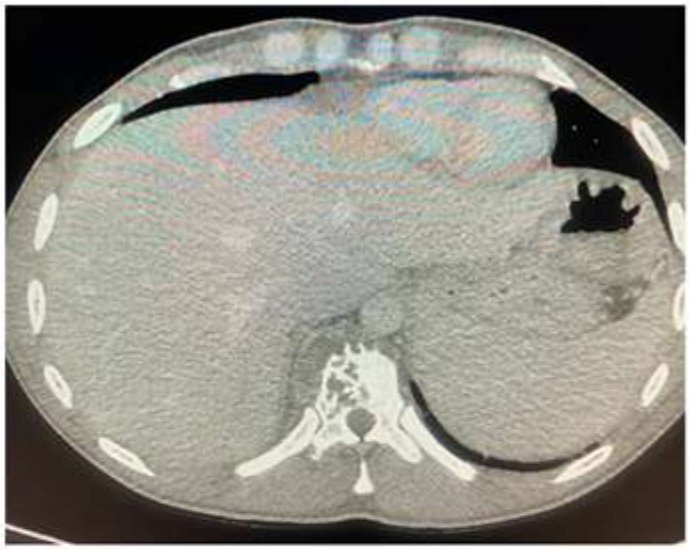

FIGURE2.1
Axial view of CT abdomen - lower thoracic : showing lytic lesion in T12 .

FIGURE 2.2
Sagittal view of CT abdomen : looking at the vertebrae at the level T10-11, there's sclerosis and erosions of the vertebral bodies and lyric lesion in T12 . Disc height in T10-11 still preserved while in T11-12 partially diminished.

FIGURE 3
Sagittal view of MRI spine : multilevel lytic lesion of the thoracic spine at the level of T10-T12 .
Mild narrowing of the spinal canal at the level of T11-12 .

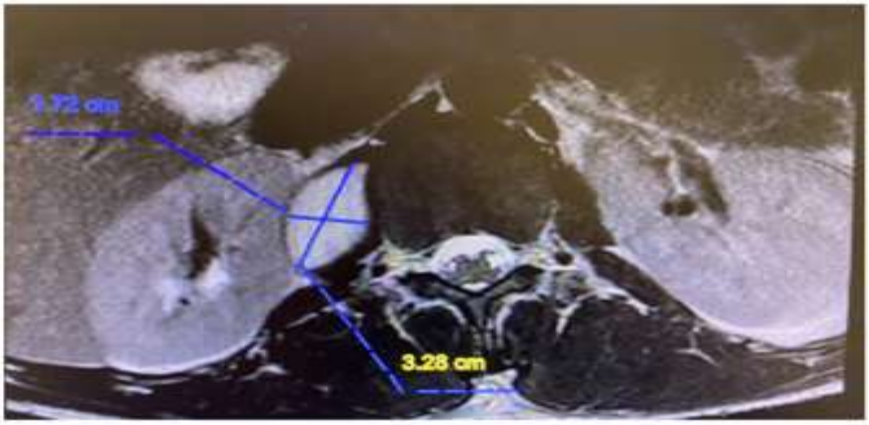

FIGURE3.1
Axial view of MRI spine : collection of abscess involving right poses muscle impinging on the right kidney measuring around 1.72 x 3.28 cm

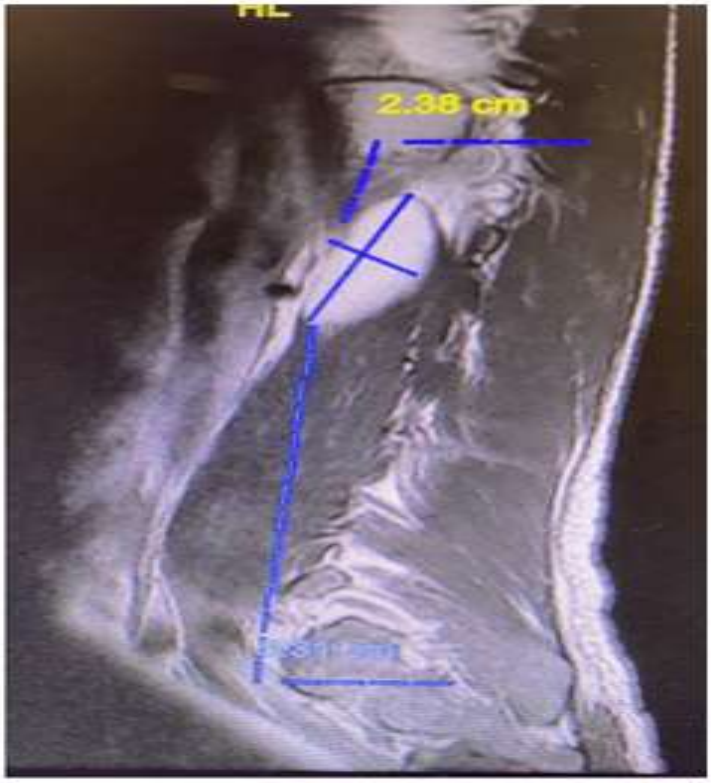

FIGURE3.2
Sagittal view of MRI : collection of the abscess involving the poses muscle .

FIGURE 4
A Sample of the drained pus from the abscess under CT guidance. confirmed Ziehl-Neelson stain: AFB positive.

Follow up:
The patient was admitted to the hospital for further investigations and workup, CT abdomen with contrast was done to rule out surgical abdomen as suggested by the surgical team who were consulted because the patient did not pass stool for ten days since admission and had distended abdomen on physical examination, surgical abdomen was ruled out, but the incidental finding was the lytic lesions, and Bony erosions found on thoracic vertebra at level of t11-t12 suggestive of TB spondylitis and MRI was also done for a better view of soft tissues, both MRI of the spine and CT abdomen raise the same findings, our next step was to contact TB specialist for further management of our patient in the contest of elevated Liver function test. TB specialist advice to start anti-TB medication with monitoring of liver enzymes and kidney function. He was started on pyrazinamide, isoniazid, later on Rifampin and levofloxacin. Ethambutol was not available.

An orthopedic and spinal surgeon was contacted to evaluate the patient for any surgical intervention that needed to be taken at this point. The spinal surgeon explained the patient's options, and the patient was offered the conservative or surgical intervention. The patient refused surgical choice and agreed for the conservative option. Conservative management started, the patient was kept on four anti-TB medications and advised to wear braces for back support. After explaining all the risks to the patient, he agreed for spinal fixation surgery, which he will do back home in Kenya. Also, surgeons advised draining the abscess. An Interventional radiologist contacted to arrange for CT-guided abscess drainage. The procedure was done under sedation, and a drain was placed for further drainage. A sample of the abscess was sent for Mycobacterium Tuberculosis (PCR) and AFB smear. Result confirmed Ziehl-Neilson stain: AFB positive. The patient was still spiking fever. A second attempt to adjust the drain for a total clearance of the abscess failed due to the sensitive area next to the blood vessels and nerves. The radiologist removed it without manipulation. In the contest of high LFT and starting anti-Tb medication, Gastroenterology consultation was sent. After evaluation by the gastroenterology team, they planned to keep all anti-TB medication regardless of the rise in the liver enzymes and advised for a liver biopsy to rule out hepatic TB. It was an invasive procedure that the patient refused. Within the next following days, his liver enzymes were improving.

The patient was doing well, passing motion regularly and tolerating feeds, still spiking fever, reaching 38 degrees, mobilizing freely with back braces. The patient was discharged on full anti-TB management planning to go back to his home town for surgical intervention.

Discussion:-

Pott's disease, also known as tuberculosis spondylitis, is a rare extra-pulmonary form of Tuberculosis infection affecting commonly lower thoracic and upper lumbar regions of the spine, mainly anterior vertebral bodies.[3][4] It is a combination of both arthritis and osteomyelitis of the vertebrae.[10] This is a life-threatening disease with an acute onset that should be diagnosed early and managed properly. Pott's disease is commonly predominant in male gender than in females with a ratio of 1.5-2:1. It mainly affects young adults.[5] The main complaints would be back pain, weight loss, neurological deficits, night sweats, and fever.[6] Back pain is usually the first and most common complaint upon presenting to the emergency room.[6] In our patient, he was a middle-aged man who had been working in the Middle East for the last three years known to have chronic back pain for the last two years, with a normal back X-ray, but due to persisting pain advised for an MRI which was not done until later. Neurological deficits, limb weakness is the commonest to present within 33%. While with total limb paralysis presentation will be around 15%. Urinary or fecal incontinence is usually presented in only 8%.[2]

LFT ON TREATMENT	LFT UPON DISCHARGE
• T.BIL 28	• T.BIL 35.8
• D.BIL 15	• D.BIL 19
• ALK P 645	• ALK P 493
• GGT 736	• GGT 601
• AST 119	• AST 71
• ALT 150	• ALT 114

Diagnosis of Pott's disease:

Laboratory studies:

A complete blood count will show leukocytosis. The Erythrocyte sedimentation rate will also be elevated.[1]The Mantoux test (Tuberculin skin test) is a significant test used to screen and confirm the diagnosis of TB. Results are positive in 84-95 %,[10] which was the case in our patient.

Microbiological studies

Draining an abscess or taking a bone tissue sample for acid-fast bacilli (AFB) under CT-guidance is a therapeutic and diagnostic procedure which will be positive in only 50% of the cases.[7] In our patient, the abscess was drained for therapeutic purposes, and a sample was sent for Ziehl-Neilson stain, which came back positive (AFB positive). An abscess sample was also sent for culture growth and identification of antibiotics sensitivity. Mycobacterium Tuberculosis polymerase chain reaction (PCR) is also done along with the culture, which in our patient confirmed Ziehl-Neilson stain. Radiological studies:

Plain radiography of the back in Potts disease early stages might show narrowing of the joint spaces due to atrophy or prolapse. With the progression of the disease, anterior wedging, or collapse. In cases where there is paravertebral abscess collection, it will be visible on plain back x-ray as a fusiform radio-dense shadow.[4][9]

Computed tomography (CT)

In compression to plain radiograph, it has the advantage of a better bony structure view. Irregular lytic lesions, sclerosis, disc collapse, shape, and calcification of the soft tissues will be confined better in a CT scan.[9]

Magnetic resonance imaging (MRI)

This is the most crucial investigation for the diagnosis of Potts disease with high specificity and sensitivity. An MRI of the back in spinal TB will show the destructive pattern of the intervertebral discs, narrowing of the spinal canal and, most importantly, soft tissue collections in multiple planes, prevertebral, and epidural collections.[9]

Management:

The treatment of pott's disease requires a multidisciplinary approach. It involves medical, surgical, physiotherapists, and when needed, radiological intervention. Medical treatment involves anti-tuberculosis medications. First-line treatment includes Ethambutol, Isoniazid, Pyrazinamide, and Rifampicin for a total of 12 months.[4][5] Surgical assessment is a must in pott's disease. Surgical intervention may involve extensive decompression. An instrumental fusion of bone and or posterior vertebral column resection with anterior debridement and fusion with cage

reconstruction surgery depends on the presentation and medical treat ment effectiveness.[8] Also, Physiotherapy for pain relief, mobilization and back braces to prevent and delay vertebral compression and home exercise program for muscle strength.

Prognosis:
Early detection and proper management of the disease will generally result in a good prognosis, especially when there is no neurological involvement.[5][8]

Conclusion:-

In conclusion, tuberculosis spondylitis is usually overlooked as one of the differentials of diagnosis of low back pain and fever, early recognition and diagnosis can provide the proper management for the patient in order to prevent serious orthopedic/neurological sequelae such as cauda equina syndrome which is one of the most important complications that has to be prevented in any case of TB spondylitis.

Patient consent:
An informed and written consent was signed by the patient for radiological images publication.

References:-

1. "The epidemiology of spinal tuberculosis in the United States: an analysis of 2002-2011'' Neurosurg Spine. , vol. 26, no. 4, pp. 507-512, Nov. 2017, DOI:10.3171/2016.9.SPINE16174
2. C. Canine, S. Medeck , A. Hackett , ''Delayed Diagnosis of Spinal Tuberculosis in a 44-year-old Male with Acute on Chronic Low Back Pain.'' Clin Pract Cases Emerg Med., vol. 3, no. 2, pp.107-111, Apr.2019 DOI:10.5811/cpcem.2018.11.38575
3. https://emedicine.medscape.com/article/226141-workup
4. JH. Walden, J. Schmitz, ''Pott's Disease Resulting in Complete Cervical Vertebral Destruction.'', Wilderness Environ Med., vol. 29, no.1, pp. 90-93, Mar.2018; DOI:10.1016/j.wem.2017.09.004
5. RK. Garg, DS. Somvanshi, ''Spinal tuberculosis: a review.'' J Spinal Cord Med., vol. 34, no. 5, pp. 440-454, 2011 DOI:10.1179/2045772311Y.0000000023
6. A. Osmanagic, A. Emamifar , j. Christian Bang , IM. Jensen Hansen., ''A Rare Case of Pott's Disease (Spinal Tuberculosis) Mimicking Metastatic Disease in the Southern Region of Denmark.'' Am J Case Rep. vol. 17, pp. 384-388, Jun.2016 DOI:10.12659/ajcr.897555
7. https://www.physio-pedia.com/index.php?title=Special%3ACiteThisPage&page=Pott%27s+Disease
8. AK. Jain , J. Kumar. Tuberculosis of spine: neurological deficit. Eur Spine J. vol. 22, no. 4, pp. 624-633, May.2012 DOI:10.1007/s00586-012-2335-7
9. S. Ansari , MF. Amanullah , K. Ahmad, RK. Rauniyar, ''Pott's Spine: Diagnostic Imaging Modalities and Technology Advancements.'' N Am J Med Sci., vol.5 no. 7, pp. 404-411, Jul.2013 DOI:10.4103/1947-2714.115775
10. https://www.who.int/en/news-room/fact-sheets/detail/tuberculosis.