The Diagnosis and Management of Patients with Spinal Infections (Including Vertebral Osteomyelitis, Spondylodiscitis and Epidural Abscess)

Editorial
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Introduction

Spinal infection is becoming an increasingly prevalent condition. However it is still often overlooked in the Casualty / ER department. As with most conditions, if it considered during the diagnostic process, it is usually correctly diagnosed. Therefore the awareness of the condition needs to be promoted. This is a useful short article covering the salient points of the condition, and how to investigate and diagnose the condition correctly.

Discitis is the inflammation of the intervertebral discs caused by an infection. In most cases, it is a single disc involved although the infection can spread to adjacent discs. The condition is rare but occurs more frequently in children than adults. It is more common in children between the ages of 2 and 7. It is more rare in elderly patients as the discs become small and less likely to become inflamed with age. The common cause of discitis is secondary infection from a remote source and the spread is through the blood stream. Rarely, it can be infection from the bone that goes down to the adjacent discs. Occasionally discitis can develop after an invasive procedure such as a lumbar puncture, epidural injection or lumbar surgery. The most common symptoms of discitis are moderate to severe pain in the low back, radiation of pain to other areas of the body, tenderness around the spine, the inability to move and bend the spine, aggravation of pain with movement. In children, symptoms may include lethargy, inability to walk, leaning forward with pain or difficulty standing up from a sitting position. If the condition is caused by infection, headaches and a slight fever may also be present. There maybe also systemic signs of ill health. Discitis can be difficult to diagnose if a patient experiences sudden back pain for no apparent reason or exhibits common symptoms, it should be suspected as a possible cause. Sometimes discitis can present with abdominal pain and in addition, difficulty getting up and standing, there may also be a curvature of the back, irritability and rigidity and stiffness of the back. The discitis may occur anywhere in the spine, the common areas are the thoracic and lumbar spine. Occasionally patients can present late with symptoms of neurological compromise secondary to discitis and abscess formation. If this happens then treatment needs to be more emergent. Essentially any patient presenting with back pain with positive red flag signs then discitis needs to be high up on your list of possibilities. Avoid antimicrobials unless patient has severe sepsis or a positive microbiological culture previously, which relates to this infection.

Presentation

I. Localised insidious pain and tenderness occur in about 90% of patients with spinal infections.

II. Look for RED FLAG SIGNS that may suggest infection or cancer.

III. History, e.g. history of cancer

IV. Constitutional symptoms, such as fever, chills or unexplained weight loss

V. Recent bacterial infections (e.g. Blood cultures, urinary tract infections or chest infections)

VI. Intravenous drug use

VII. Immuno-suppression

Pain that remains when supine; Aching night-time pain disturbing sleep; Thoracic pain (which also has the differential diagnosis of an aortic aneurysm).

Examination

I. Structural deformity of spine.

II. Pyrexia is present in less than 50% of patients with spinal infections.

III. Localised spinal tenderness (about 90% of patients)

IV. Assess and note motor and sensory deficits due to spinal cord or nerve root compression (in about 15% of patients).

V. Assess for any spinal wounds, lesion or discharge.

Investigation

ESR and CRP are usually elevated and vital in monitoring response to treatment • White Blood Cell Count may be normal. Full sepsis screen to include; blood cultures x3 taken at different times, urine cultures, deep swab if patient has a spinal wound, and any other appropriate cultures should be taken to look for the source of infection.

Radiological Request

Good plain X-ray of the spine and Chest X-ray (especially if tho-

racic spine involve).

Look for the following

I. Vertebral end plate irregularity.

II. Disc height loss.

III. Frank destruction.

IV. Sometimes paravertebral soft tissue thickening.

MRI is the most sensitive and specific radiological investigation for diagnosis. Urgent MRI is advised if discitis is suspected and should be mentioned on the request card. There is usually a radiologist on MRI duty and should be consulted if needed.

i. Confirms presence of and level of spondylodiscitis.

ii. Confirms epidural or paravertebral abscess.

iii. State of spinal cord or cauda equine.

iv. Multilevel infections.

A NEGATIVE MRI is very specific for a lack of spinal infection. If there are contraindications to MRI. CT can be done, especially with an ability to do Hi Res Sagittal multiformats, high sensitivity and specificity can be obtained in diagnosing and managing spinal infections. Discussions should be done with Ortho/Microbiology team as well as the Radiology Consultant/Attending on duty for CT on the day.

CT/Fluroscopic-guided or open biopsy of the infected disc space area for microbiological diagnosis has a sensitivity of about 50% and best done before any antimicrobial therapy (useful in administrating targeted treatment).

The Orthopaedic/Microbiologist/Radiologist Team should be informed, to ensure adequate plans are in place to manage possible complications from procedure and adequate processing of samples obtained during biopsy.

Orthopaedic referral

Once diagnosis is confirmed, refer to orthopaedic team for further management.

Antimicrobial treatment

Avoid starting any antimicrobials until after biopsy samples have been taken except in cases where patient has severe sepsis, or patient already has positive microbiology cultures e.g. blood cultures. Empirical therapy should also be avoided, discuss with microbiologist if need to commence antimicrobials on a case-by-case basis. Average treatment duration is usually 3 months but may be longer.

In cases of epidural abscess, surgical intervention may be required to drain the abscess. A spinal consult is advised.

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