BMH MEDICAL JOURNAL

BMH Med. J. 2023;10(1):18-24. **Case Report**

Pyogenic Spondylodiscitis Caused By Streptococcus Agalictiae - A Case Report

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Abstract

Introduction: Group B streptococcus (Beta-haemolytic streptococcus, Streptococcus agalactiae) is one of the most frequent cause of sepsis and infectious disease in neonates. However, the disease burden is now shifting towards adults. We report a case of Group B streptococcus spondylodiscitis in an adult female.

Case Report: An elderly female with history of carcinoma breast for which she underwent mastectomy 20 years back, developed low back ache of one month duration. She had elevated ESR and CRP, and MRI was suggestive of spondylodiscitis at D12-L1 level. She underwent biopsy, Culture and sensitivity and posterior fixation. Culture yielded Streptococcus agalactiae. She was further treated with culture specific antibiotics.

Discussion: Group B streptococcus commonly colonizes the gastrointestinal and urinary tracts of healthy adults and the genital tract of healthy females. Puerperal women and patients with severe underlying diseases are at higher risk of Streptococcus agalactiae infection. Clinical features are same as spinal infections, with elevated ESR, CRP, total counts and MRI changes. Blood culture is mandatory but may yield false negatives. Open or CT guided biopsy for culture and sensitivity is recommended. Principal of surgery is to remove avascular infected disc tissue. Combination of beta lactam antibiotic and amino glycoside is recommended for 6 weeks.

Conclusion: Whatever the patient's immunological status, we recommend that Group B Streptococcus should be considered in the differential diagnosis of infective spondylodiscitis in adults, and invasive diagnostic tests be done.

Keywords: Streptococcus agalactiae; Group B streptococcus; Spondylodiscitis

Introduction

Group B streptococcus (Beta-haemolytic streptococcus, Streptococcus agalactiae) is a beta-hemolytic, catalase-negative, and facultative anaerobic bacterium. It is one of the most frequent cause of sepsis and infectious disease in neonates. However, t he disease burden is now shifting

towards adults [1-3]. The majority of patients with Group B streptococcus spondylodiscitis are either puerperal women or have underlying systemic diseases, but serious infections may also occur in adults who are otherwise of good health [4-8]. We report a case of Group B streptococcus spondylodiscitis in an adult female.

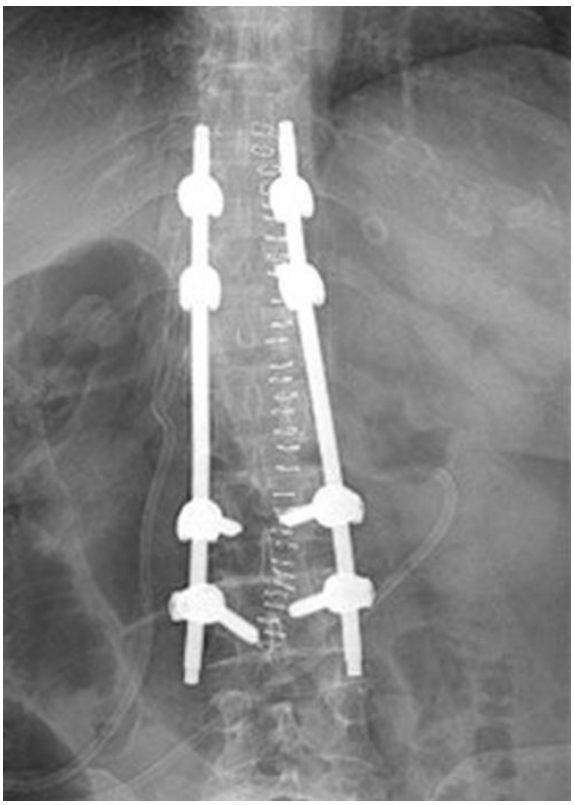
Case report

An elderly female with history of dyslipidemia developed low back ache for one month. Symptoms aggravated later with pain radiating to both lower limbs and with difficulty in walking. She had a history of carcinoma breast for which she underwent mastectomy 20 years back. She was evaluated and initial blood workup were within normal limits except for raised Erythrocytic Sedimentation Rate - 66mm/hr and C-Reactive Protein - 22 mg/dl.

MRI thoracolumbar spine was taken which showed, altered marrow signal intensities noted in the anterior elements of D12 and L1 with partial collapse of D12 vertebra. Anterior epidural soft tissue enhancement was evident without obvious collection or abscess formation. Findings were suggestive of spondylodiscitis at D12-L1 level.

Figure 1: MRI thoracolumbar spine showing altered marrow signal intensities in the anterior elements of D12 and L1 with partial collapse of D12 vertebra. The anterior epidural soft tissue enhancement is evident without obvious collection or abscess formation. Findings are suggestive of spondylodiscitis at D12 - L1 level.

She underwent Transpedicular biopsy of D12 vertebrae, discectomy at D12-L1 (retro-pleural approach), posterior instrumented stabilization from D10 to L3 (pedicle screw fixation). Specimen were sent for culture and sensitivity and histopathologic examination.



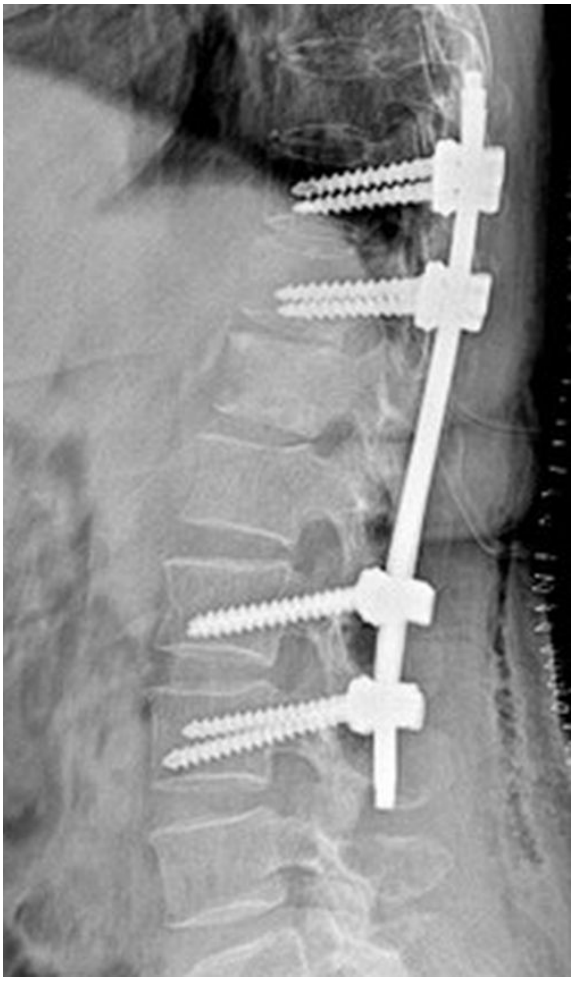


Figure 2 and 3: Post operative X-rays, with posterior instrumentation

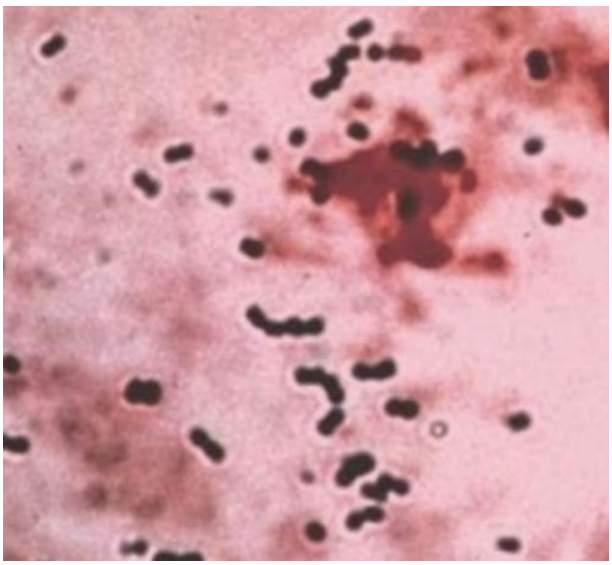


Figure 4: Pus culture and sensitivity showing scanty growth of Streptococcus agalictiae (Group B Streptococcus)

Pus culture and sensitivity yielded scanty growth of Streptococcus agalictiae, sensitive to - Ceftriaxone, Ampicillin, Vancomycin, Cotrimoxazole, Levofloxacin, Clindamycin and Linezolid. She was started on IV Ceftriaxone with Sulbactam 1.5 gm 12th hourly and oral Levofloxacin 500 mg twice daily. Patient improved clinically with reduced pain and was mobilized. She was able to sit and stand without support. Repeat blood and urine cultures were negative.

Discussion

Group B streptococcus commonly colonizes the gastrointestinal and urinary tracts of healthy adults and the genital tract of healthy females [3,9,10]. Organism has been isolated from cultures of the human rectum, vagina, cervix, urethra, skin, and pharynx, accounting for a considerable human reservoir [4,11]. Two groups of adults are at higher risk of Streptococcus agalactiae infection - those are puerperal women and patients with severe underlying diseases. Risk factors which predisposes to infection include age over 60 years, diabetes mellitus, cardiac disease, collagen vascular disease, alcoholism, malignancy, renal or hepatic failure, previous stroke, corticosteroid treatment, AIDS, genitourinary abnormalities and neurologic deficits [3,9,10].

The clinical characteristics of spinal infections due to Group B Streptococcus did not differ from those of other causes of infective spondylodiscitis. Most papers report an equal prevalence among men and women [11-15]. But Narváez et al. reports a male preponderance with male to female ratio of 2.5 [4]. Again, most authors reported an increase in incidence in elderly, over 65 years of age, while Narváez et al. noted no differences with regard to age [4,11-14] Most frequent clinical findings were local pain and fever. A rise in the ESR and CRP is seen in over 90% of patients [16-19]. Leucocytosis occurs in less than 50% [18-22].

X-rays show a combination of destructive changes of two contiguous vertebral bodies with collapse of the intervening disk space. But rarely the infection can also be confined to a single vertebra producing the collapse of the vertebral body. The lumbo-sacral region was the most commonly affected (81% of cases), followed by the cervical spine (12.5%) and the thoracic spine (6.5%) [4]. MRI is the most sensitive (93-96%) and specific (92.5-97%) modality for early detection of spondylodiscitis [18,23,24]. MRI findings includes loss of endplate definition on T1-weighted images and decreased signal intensity in the inter vertebral disc and adjacent vertebral bodies on T2-weighted images. Contrast study shows enhancement of the disc, adjacent vertebral bodies and paravertebral soft tissues on T1-weighted images [4]. Blood cultures are mandatory and has 25% to 82% positivity rate [25].

Group B Streptococcus isolates are uniformly susceptible to penicillin G, which is considered the drug of choice for the treatment of infections caused by this organism. With respect to other antimicrobial agents, Group B Streptococcus is susceptible to ampicillin, extended-spectrum Penicillins, first- to third-generation Cephalosporins, and Vancomycin, but Penicillin G is the most active agent in vitro [26]. Penicillin-tolerant S. agalactiae isolates have been recently described in patients with serious Group B Streptococcus infections associated with therapeutic failures [27-29]. The combination of a beta lactam antibiotic with an aminoglycoside has in vitro and in vivo synergistic activity against penicillin - susceptible and penicillin - resistant Group B streptococcus strains [30]. For this reason, the combination of penicillin G or ceftriaxone plus gentamicin during the first 2 weeks is currently been recommended for Group B Streptococcus severe infections [4,31]. There is also significant resistance among Group B Streptococcus isolates to macrolide agents and some resistance to clindamycin [26]. Treatment must be administered for a minimum of 6 weeks. The intravenous antibiotic treatment usually takes about 4 weeks, and then is usually followed by about 2 weeks of oral antibiotic. Longer therapy (12 weeks) may be necessary for patients with advanced disease manifested by extensive bone destruction and/or paravertebral infection [4].

The principal aim of surgery is to debride infected disc tissue, which is avascular [32]. Spinal surgery can be done with debridement alone or with instrumentation, and ongoing infection is not a contraindication for spinal instrumentation [33,34].

Conclusion

Group B Streptococcus is emerging as a cause of spinal infections in non-pregnant adults, especially in those with chronic underlying diseases. Recently it is also being increasingly identified as to affect immunocompetent patients. Whatever the patient's immunological status, we recommend that Group B Streptococcus should be considered in the differential diagnosis of infective spondylodiscitis in adults, and invasive diagnostic tests be done.

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