

Ultrasonography-guided Needle Aspiration of Giant Tubercular Retropharyngeal Abscess Causing Airway Obstruction and Dysphagia

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Abstract:

Background: Cervical tuberculosis resulting in massive retropharyngeal abscess formation, leading to dysphagia and airway obstruction is a rare and potentially life-threatening complication. Management options include urgent anterior cervical decompression, immediate endotracheal intubation, emergency tracheostomy to secure airway. We are here presenting a case of cervical tubercular spondylo-discitis with giant retropharyngeal abscess causing dysphagia and airway obstruction treated with USG guided aspiration resulting in prompt relief of symptoms and rapid neurological recovery.

Case characteristics: A 55 years old male presented to us with complains of gradually developing weakness in all four limbs for 15 days along with difficulty in breathing and swallowing since last 2 days. After proper clinical examination and radiological evaluation, provisional diagnosis of tuberculosis of cervical spine with giant retropharyngeal abscess was made.

Outcome: USG guided aspiration of retropharyngeal abscess was done which resulted in prompt relief of symptoms of dysphagia and dyspnea along-with rapid neurological recovery.

Conclusion: Tubercular retropharyngeal abscess leading to dysphagia and airway obstruction is a rare complication and can be life-threatening in the setting of limited facilities for urgent cervical decompression. Prompt clinical diagnosis followed by timely intervention in the form of USG guided aspiration of abscess is found to be an effective and lifesaving measure. Compared to morbidity associated with emergency procedures such as endotracheal intubation and urgent tracheostomy, USG guided aspiration of abscess results in prompt relief of both dyspnea and dysphagia. At the same time it aids in obtaining sample for histo-pathological diagnosis.

Keywords: Retropharyngeal abscess; Dysphagia; Airway obstruction; Needle aspiration; Spondylodiscs

I. Introduction

Tubercular spondylo-discitis is a slowly progressive destructive infection of one or more vertebrae. It commonly involves thoracic and lumbar vertebrae followed by sacral and cervical vertebrae. Retropharyngeal abscess is a rare presentation, but upper respiratory tract obstruction and dysphagia can occur in spine tuberculosis due to expanding retropharyngeal cold abscess or secondarily from its rupture¹. This case is documented in view of large size of abscess impinging on airway and compressing esophagus along with typical radiological features of tubercular spondylo-discitis i.e. destruction and collapse of vertebral bodies. Management options include: urgent intubation¹ or tracheostomy². When tense abscess is the cause, trans-oral needle aspiration³ or surgical drainage³ are the others options. Ultrasound guided needle aspiration is also a viable treatment option, where urgent spine surgery facility is not available and disease affecting lower cervical vertebrae.

II. Case Report

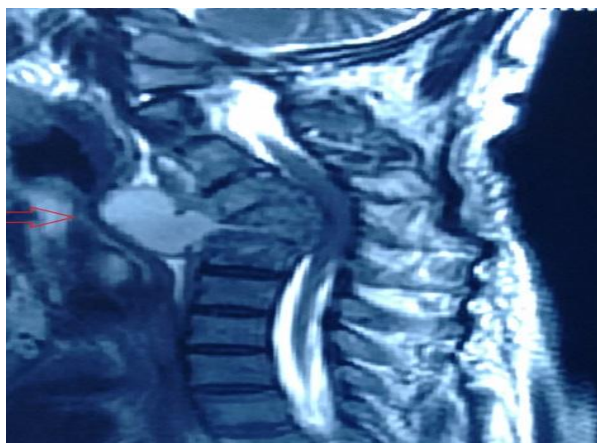
A 55 year-old male presented to emergency with chief complains of weakness of all four limbs, stridor and progressive difficult in swallowing. On detailed enquiry, he had history of neck pain for the past six months which worsened for last one month. Patient also experienced decreased movement of neck and weakness of all four limbs for fifteen days. Then he developed dysphagia and stridor since two days. On examination, patient was conscious and hemodynamically stable. Patient was febrile, tachypneic and had bulge over left side of neck without cyanosis. Neurological examination revealed that the muscle tone was increased in all four limbs. Motor power, according to the grading of the Medical Research Council (MRC), was 4/5 in the both shoulder and

elbow flexor, 3/5 in elbow extensors, wrist and lower limbs. Finger grips were weak in both upper limbs. Deep tendon reflexes were exaggerated without ankle or patellar clonus. Bilateral planters were up-going but abdominal reflexes were present. There was no sensory deficit or bladder-bowel involvement. Cervical spine radiograph showed destruction of the C5 and C6 vertebral bodies with decreased intervertebral disc spaces and increased pre-vertebral soft tissue shadow (Fig.1). Magnetic resonance (MR) imaging, showed marrow edema in C5, C6 and C7 vertebral bodies, with collapse and intervertebral disc involvement resulted in kyphotic deformity of cervical spine. There was a huge retropharyngeal abscess extending from C3 to C7 vertebral level. Epidural collection was causing marked compressive myelopathy at C4 to C7 (Fig.2). Tuberculosis was provisionally diagnosed. Philadelphia collar was applied to the patient and oxygen inhalation given. Ultrasonography-guided aspiration with a 16 gauge needle was performed in an emergency under local anesthesia and without sedation. About 150 ml of pus was aspirated. Dysphagia, stridor and hoarseness decreased immediately. No attempt for endotracheal intubation or tracheostomy was made. The pus was sent for microbiological analysis. Skull traction was started with 5 kg weight. Patient started neurological recovery in next 24 hours. His both elbow extensors, wrist dorsiflexors and all key muscles of lower limbs improved from 3/5 to 4/5 in 3 days. His shoulder and elbow flexors muscles also improved from 4/5 to 4+/5. Simultaneously Category 1 anti-tubercular drugs were started. Enzyme-linked immune-sorbent assay (ELISA) was done for Human immunodeficiency virus, which was negative. His fasting and post-prandial blood sugars were also within normal. Patient did not developed similar types of episodes later during treatment. Ziehl-Neelsen staining as well as culture for acid fast bacilli was positive. Category 1 Anti-tubercular drugs were continued. Finally, patient was managed conservatively with skull traction for four weeks followed by halo vest application (Fig.3). After three months of follow up, patient has recovered completely.

II. Figures



“Fig.1” : Preoperative lateral radiograph of cervical spine showing destruction of the C5 and C6 vertebral bodies with decreased intervertebral disc spaces and increased pre-vertebral soft tissue shadow.



“Fig.2” : Magnetic resonance imaging (Sagittal T2 image) showing a huge retropharyngeal abscess extending from C3 to C7 vertebral level as well as epidural collection causing marked compressive myelopathy at C4 to C7.



“Fig 3”: Post-operative lateral radiograph of cervical spine showing decreased kyphotic deformity and pre-vertebral soft tissue shadow after halo vest application.

III. Discussion

Tubercular spondylo-discitis of cervical spine which accounts for 7% of all cases of skeletal TB is an important cause of chronic retropharyngeal abscess¹⁰. Retropharyngeal tuberculous abscess is a rare presentation of the disease as evidenced by a study of 117 patients with head and neck tuberculosis showed only 1 case of retropharyngeal abscess¹¹. When retropharyngeal abscess occur in the mid-cervical region, may cause respiratory obstruction⁴. Early stages of spinal TB present with low grade fever, weight loss, malaise, night sweats and vague neck pain. Odynophagia with drooling of saliva, dysphagia, neck stiffness and torticollis may be presenting features of retropharyngeal abscess. Tubercular spondylitis is commonly associated with neurological deficit resulting from external compression of the cord by extradural abscess, spondylolisthesis, granulation tissue, vertebral body collapse, and stretching over bony ridges⁵, but upper respiratory tract obstruction and dysphagia can occur in spine tuberculosis occurs due to expanding retropharyngeal abscess or secondarily from its rupture¹. Noisy breathing and respiratory distress if associated indicate airway compromise. Management options includes: Urgent surgical decompression, emergency tracheostomy, immediate endotracheal intubation and image guided aspiration of abscess. Surgical drainage includes simple intraoral approach, extensive external cervical approach or minimal invasive technique such as image guided needle aspiration⁶. Intubation may be difficult and dangerous in potentially unstable cervical spine tuberculosis¹, unless it is performed by experts, as hyperextension of the neck may damage the spinal cord. Normal anatomy is distorted by the abscess; hence, the vocal cords may not be seen. In such cases, blind or forceful intubation may result in rupture of the abscess¹. Hence, only fiberoptic intubation is considered safe¹.

Tracheostomy may be life-saving if cyanosis is present. Otherwise, it may contaminate the future operating field in the anterior approach toward the cervical spine. Neither tracheostomy nor intubation yields any sample for diagnosis, nor do they have any de-compressive effect on the abscess to lead to potential neurological recovery. Ultrasound -guided needle aspiration may potentially be a better therapeutic option as has several advantages. It may be repeated if required & can be performed under local anesthesia. It can be used after intubation to relieve pressure of the abscess. It also saves time in the event that a spine surgery facility is not immediately available. Furthermore, needle aspiration may be used to exclude other differential diagnoses such as a malignant tumor presenting clinico-radiologically as a pre-vertebral abscess.^{7,8} Surgery may be avoided altogether in selected cases, as massive cold abscesses have been reported to have disappeared on medical treatment alone¹⁰. However in cases where pus cannot be successfully aspirated and urgent fiberoptic intubation/tracheostomy and surgical drainage may be more appropriate. In sub-acute upper airway obstruction caused by retropharyngeal abscess, image guided needle aspiration may potentially be a better therapeutic option than intubation, tracheostomy or surgery.

Hence, ultrasound guided aspiration using wide bore needle was performed in our patient through the bulging portion of the anterolateral aspect of left side of neck anteromedial to the sternocleidomastoid belly and carotid sheath. Besides the prompt restoration of compromised airway in expanding abscess, its de-compressive effect may create an environment for better drug penetration and facilitation of neurological recovery. Image guided aspiration by experienced clinicians may be particularly useful when emergency fiberoptic intubation by experts is unavailable or where urgent decompressive surgery is not possible.

IV. Conclusion

Tubercular retropharyngeal abscess leading to dysphagia and airway obstruction has been known to be a rare complication and can be life-threatening in the setting of limited facilities for urgent cervical decompression. Prompt clinical diagnosis followed by timely intervention, in the form of USG guided aspiration of abscess found to be effective and lifesaving measure. Compared to morbidity associated with emergency procedures such as endotracheal intubation and urgent tracheostomy, USG guided needle aspiration of abscess is a potentially better therapeutic option which results in prompt relief of both dyspnea and dysphagia. At the same time aids in obtaining sample for histo-pathological diagnosis.

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*Dr. Vinay Prabhat. "Ultrasonography-guided Needle Aspiration of Giant Tubercular Retropharyngeal Abscess Causing Airway Obstruction and Dysphagia." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* 16.7 (2017): 69-71.