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Case Report

IJV Thrombosis in a case of Tubercular Cervical Lymphadenopathy

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Abstract
Background: *A 44-year-old female came to tertiary care hospital with complaints of swelling present in neck region on left side along with discharging fluid since last 1month. The swelling was tender, fluctuant, non-pulsatile, non-reducible in nature. It was associated with local rise of temperature and associated with discharge. Patient received seven-day course of an antibiotic (Amoxycillin-clavulanic acid) at local place without relief. Patient was vitally stable with oxygen saturation of 98 percent on room air. USG showed well-defined, heterogeneous, predominantly hypo-echoic conglomerated lymph nodes in cervical region at level II largest measuring 3.4*3*4.2 cm with necrotic material within it. The visualized left Internal Juglar Vein showed echogenic material with absent colour flow suggestive of left side IJV thrombosis (Fig 1).*
Methods & Results: *Ultrasound-guided fine-needle aspiration cytology of the cervical node was performed, which showed caseous necrosis and epitheloid granuloma, with acid-fast bacilli being positive. Patient was started on Anti-tubercular drug after the diagnosis was made. Subsequently patient was started on LMWH for the underlying IJV thrombosis with the warfarin cover and PT-INR monitoring.*
Discussion: *IJV thrombosis is a serious entity with a potentially fatal outcome. Its complications could include pulmonary embolism and sepsis as well as intracranial propagation of the thrombus. The thrombogenic potential of tuberculosis is not well known however it has been postulated to be a hypercoagulable state that appears to develop secondary to the acute phase response. Knowledge about IJV thrombosis secondary to tubercular cervical lymphadenopathy among general surgeonsis quintessential as the presentation can easily be mistaken for neck abscess, treatment is not standardized and the incidence of occurrence is rare.*
Keywords: *Tuberculosis; IJV thrombosis; Cervical Lymphadenopathy; Case Report; Anti-coagulation.*

Introduction

Tuberculosis (TB) is an infectious disease with high prevalence in India and worldwide. Internal jugular vein (IJV) thrombosis is a serious and potentially life-threatening occurrence, and is usually associated with malignancies; prolonged

central venous catheterization or deep seated head and neck infections or trauma, however it is an extremely rare complication of isolated tuberculous cervical lymphadenopathy[1]

Case Report

A 44-year-old female came to tertiary care hospital with complaints of swelling present in neck region on left side along with discharging fluid since last 1month. The swelling was tender, fluctuant, non-pulsatile, non-reducible in nature. It was associated with local rise of temperature and associated with discharge. Patient received seven-day course of an antibiotic (Amoxycillin-clavulanic acid) at local place without relief. Patient was vitally stable with oxygen saturation of 98 percent on room air. USG showed well-defined, heterogeneous, predominantly hypo-echoic conglomerated lymph nodes in cervical region at level II largest measuring 3.4*3*4.2 cm with necrotic material within it. The visualized left Internal Juglar Vein showed echogenic material with absent colour flow suggestive of left side IJV thrombosis (Fig 1). Ultrasound-guided fine-needle aspiration cytology of the cervical node was performed, which showed caseous necrosis and epitheloid granuloma, with acid-fast bacilli being positive. Mantoux was positive 10mm at the end of 48 hours. Haemoglobin was 9.3 g/dL, TLC 15×109/L, platelet count 250×109/L, erythrocyte sedimentation rate 40 mm in first hour, with normal Pro-thrombin time, creatinine and liver function tests. Blood tests for proteins C and S, anti-thrombin III, Serum homocysteine, Anti-nuclear antibodies and Anti-phospholipid antibody were within normal limits. HIV serology was negative. Patient was scheduled for a CECT neck but due to detoriation of patient's vitals condition the patient was shifted in ITU and the treatment was initiated at the earliest.

Patient was started on Anti-tubercular drug after the diagnosis was made. Subsequently patient was started on LMWH for the underlying IJV thrombosis with the warfarin cover and PT-INR monitoring.

However late presentation and delay in diagnosis, patient subsequently developed pulmonary thromboembolism and went into cardio-respiratory arrest.

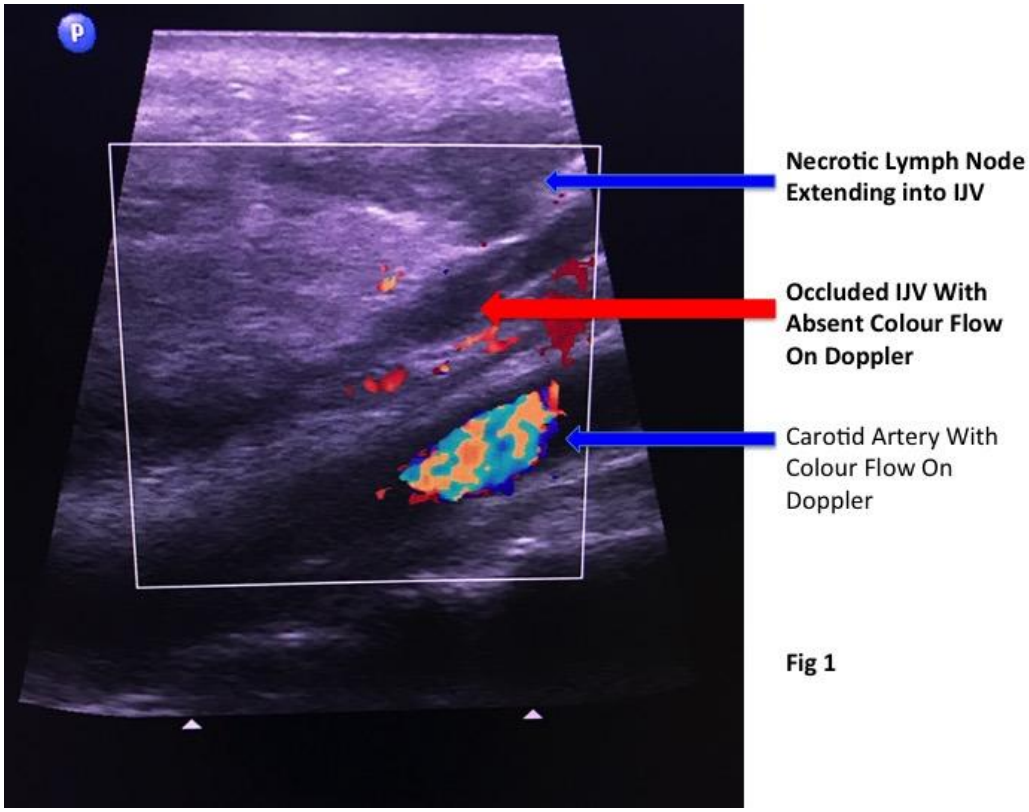

Fig 1

Discussion

IJV thrombosis is a serious entity with a potentially fatal outcome. Its complications could include pulmonary embolism and sepsis as well as intracranial propagation of the thrombus. The history and examination in patients with IJV thrombosis may be vague and misleading, necessitating a high index of suspicion in order to arrive at the diagnosis. IJV thrombosis can occur anywhere from the intracranial IJV to the junction of the IJV and the Subclavian vein where it forms the brachiocephalic vein[2]. Common predisposing factors responsible for IJV thrombosis are central venous catheters in hospitalized patients, hypercoagulability of malignancy, head and neck surgery, polycythaemia, hyper-homocysteinaemia, deep neck infections, intravenous drug abuse, neck massage and assisted conception therapy[2,3]. Thepathophysiology of thrombosis is based on Virchow's triad of stasis, hypercoagulable state and vascular injury[4]. The thrombogenic potential of tuberculosis is not well known[5]. Although there are reports of thrombotic events in cervical tubercular lymphadenopathy[1], hepatic tuberculosis[6], gastrointestinal tuberculosis[5] and pulmonary tuberculosis[7], Which can be explained as large collective matted lymph node mass or mediastinal enlargement in tuberculosis causes mechanical venous obstruction, which leads to stasis of blood flow[8]. Tuberculosis has been postulated to be a hypercoagulable state that appears to develop secondary to the acute phase response. The production rate of fibrinogen, which is an acute-phase reactant, may increase greatly secondary to inflammation[9]. Reduced anti-thrombin III and protein C levels, due to hepatic dysfunction secondary to tuberculosis, have been reported and may contribute to the hypercoagulable state[10]. It has been postulated that interaction between mycobacterial products and the monocyte macrophage system synthesizes large amounts of TNF-α and interleukin- 6, which change the normally non-thrombogenic internal surface of the vessel into a thrombogenic surface with subsequent development of local thrombosis[11]. Complication of IJV thrombosis is septic emboli, intracranial venous sinus thrombosis, raised intracranial pressure, pulmonary embolism, facial edema, and loss of vision[12].

Vascular stasis secondary to the large matted tubercular lymph node mass in the neck; local invasion with resultant endothelial damageis a probable explanation for the IJV thrombosis in this patient.

Painful neck swelling and fever are presenting features in majority cases of IJV thrombosis[13].

Both USG and CT are accurate and reliable radiological investigations for detecting IJV thrombosis, along with cervical lymph nodes. They are useful in assessing surrounding soft tissue and fat planes, and knowing the size and extent of cervical lymphadenopathy. Both USG and CT scan show number and extent of cervical lymph nodes, central caseation necrosis, matted lymph nodes, IJV invasion, and IJV thrombus. Doppler and contrast enhanced CT scan shows patency of remaining IJV lumen. ATT should be immediately started in addition to anticoagulant therapy. Optimum duration of anticoagulation in IJV thrombosis is not yet standardized[1]. Cohen *et al* suggested one week of heparin and three-month course of warfarin to treat IJV thrombosis[14]. During the course of treatment the complex interaction of anti tubercular drug with warfarin should be kept in mind. Rifampicin is known to reduce the effect of warfarin on pro-thrombin activity[15,16].

Conclusion

Thrombosis of IJV due to Oro-pharyngeal infections in young individuals (Lemierre's syndrome) was frequent in pre-antibiotic era. IJV thrombosis is rarely complicated by tuberculosis, which is common in most parts of the world. Fine needle aspiration biopsy of cervical lymphadenopathy should be attempted with caution to avoid possible dislodgement of thrombus during the procedure. Knowledge about IJV thrombosis secondary to tubercular cervical

lymphadenopathy among general surgeonsis quintessential as the presentation can easily be mistaken for neck abscess, treatment is not standardized and the incidence of occurrence is rare. At the same time, there is a strong need to standardize the management of such conditions.

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