MRI Imaging of Ulnar Leprosy Abscess


Abstract
Leprosy is a chronic granulomatous infection, caused by mycobacterium leprae, primarily affecting the peripheral nerve trunks and cutaneous nerves. It classically presents with neural or dermal signs and symptoms. The indolent course of leprosy may manifest as erythema nodosum (appearance of tender inflamed subcutaneous nodule) and reversal reaction (inflammation in the previous skin lesion, appearance of new skin lesions, neuritis and abscess). Ulnar nerve is most commonly involved. This report illustrates the MR imaging appearance of ulnar nerve abscess. ©

INTRODUCTION
Leprosy has a high prevalence in India of about 5 per 10000 populations with about 70% of globally recorded cases.1 The leprosy bacilli have a characteristic feature of nerve involvement, involvement of testis, lymph nodes, spleen, liver, larynx, bone marrow. They usually present with cutaneous and neurological involvement.

CASE REPORT
35 years old male patient presented with chief complaints of swelling behind the right elbow on the ulnar aspect since 3 yrs., numbness in the little finger since 1 yrs. swelling was initially painless. There was numbness along the little finger which was increasing gradually. Later developed hyperesthesia in the distal phalynx of the little finger. On examination there was a nodular swelling behind the elbow on the medial aspect with mild tenderness on palpation. There was no skin discoloration. The examination of all the other systems was normal. Clinically it was suspected as enlarged lymph node or nerve sheath tumor

MRI was done for further evaluation. The MRI showed a nodular lesion with peripheral enhancement and central necrosis adjacent to ulnar nerve which was thickened and showed abnormal T2 bright signals with enhancement (Figs. 1-3). This was suggestive of ulnar neuritis with abscess

Incision and drainage of the abscess done under general anesthesia. The swelling was incised; pus came out of abscess cavity which was send for aerobic culture sensitivity. Thick wall cavity was dissected from the adjacent muscle and ulnar nerve securing the nerve. Histopathology of cavity wall showed caseating epitheloid granuloma and giant cells. Disrupted native nerve fibers were identified within and around the granuloma. The caseating material showed acid fast bacilli in singles and clusters. These were suggestive of tuberculoid neuritis consistent with tuberculoid Hansen's disease.

DISCUSSION
Leprosy is caused by mycobacterium leprae, an obligate intracellular acid fast bacillus with a predilection for dermal and neural cells. Peripheral nerve involvement is a unique feature characteristic of leprosy. In most of the cases the neural lesion remains as a granuloma however in some cases they may soften and form abscess. The abscess formation is very uncommon. It is more often seen in tuberculoid form.2,3 In Indian patients the abscess formation is more common.4,5

Broadly there are three types of leprosy, the tuberculoid, lepromatous and borderline.

The differentiation is based on symptoms, bacterial load and individual's immune response.

In Tuberculoid leprosy the primarily affected nerves are pressure/trauma dependant. The most commonly involved nerve is ulnar nerve followed by median nerve, sural nerve, radial and branches of facial nerve.

In lepromatous leprosy the nerve damage is widespread and symmetrical with extensive intracutaneous nerve involvement and resembles symmetric polyneuropathy. Sensory loss occurs in the coolest areas of body like dorsum of hand and feet, ear, dorsum of fore arm and anterolateral parts of leg.

Borderline leprosy has characteristic of both tuberculoid and lepromatous.

The indolent course of leprosy may be interrupted by erythema nodosum leprosum and reversal reaction. The erythema nodosum leprosum is characterized by tender inflamed subcutaneous nodule with fever, and malaise. Reversal reaction is characterized by appearance of new

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skin lesions and neuritis.

In the multi bacillary leprosy the nerve thickening occurs following the invasion of the bacilli in the nerve and following lepra reaction. While in paucibacillary the hypersensitive reaction leads to sudden inflammation. The swollen nerve may get entrapped in the tunnel.7

The imaging has limited role in leprosy. MRI shows diffuse enlargement and swelling of the nerve. This is non specific and can be seen in hypertrophic neuropathy, amyloid infiltration, and chronic relapsing polyneuropathy. The Nodule or granuloma and abscess formation is suggestive of leprosy.1 The abscess shows peripheral enhancement on post contrast study as like abscesses elsewhere in body.2 However its relation with nerve is important feature of leprosy.

Surgical intervention in the form of epineurotomy by multiple longitudinal incisions and external decompression to relive the internal pressure through out the involved segment is the treatment of choice after failure of steroid treatment.6 Once the nerve abscess is detected it should be drained without disturbing the intact nerve other wise it may rupture through skin.

**CONCLUSION**

This case report illustrated the MR imaging appearance of leprosy abscess. Nerve abscess is uncommon complication of leprosy however in appropriate clinical setting and appearance on MRI a diagnosis of nerve abscess should be considered.

**REFERENCES**