Case Series

Cat Scratch Disease - A Diagnostic Dilemma in Cervical Lymphadenopathy

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ABSTRACT

Introduction

Cervical lymphadenopathy in adults can be infective, benign or malignant. Wide spectrum of clinical diagnosis is possible as patients experience constituitional symptoms along with regional lymphadenopathy. Histopathological examination and serological tests provide diagnostic confirmation for accurate treatment.

Case Series

This is a descriptive case series study conducted at a tertiary care centre between Feb 2023- March 2025. We report the clinico-epidemiological profile and management of 3 patients with cat scratch disease. All patients presented with cervical lymphadenopathy and were diagnosed and managed with surgery and antibiotics.

Conclusion

Cat scratch disease is an uncommon cause of cervical adenopathy in India. It is a benign self-limiting disease caused by Bartonella Henselae. Histopathological examination can vary from lymphoid hyperplasia to chronic granulomatous inflammation with necrosis. All patients in our case series were managed successfully and were followed for 6 months post treatment.

Keywords

Cat-Scratch Disease; Lymphadenopathy; Lymph Nodes

Cervical lymphadenitis in adult population can be infective, benign or malignant. Wide spectrum of clinical diagnosis is possible as majority of the patients experience similar constituitional symptoms such as fever, malaise, fatigue along with regional lymphadenopathy. Cat Scratch Disease (CSD) is characterized by self-limiting lymphadenopathy caused by *Bartonella Henselae*.[1] *B. Henselae* is a gram negative intracellular bacteria present in various mammals including cats, rodents and humans. They are transmitted mainly by direct contact such as animal scratches and bites, or by some arthropods such as sand flies, lice, fleas, biting flies, and ticks.[2] It usually presents with skin lesions with regional lymphadenopathy. Atypical presentation is seen in in about 5%–25% of all cases having fever, multi-organ involvement with or without lymphadenopathy.[(3)] Histopathological examination & serological tests provide diagnostic confirmation for accurate treatment. We are reporting 3 such cases for emphasizing its importance in the differential diagnosis of cervical lymphadenopathy.

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Case Series

This is a descriptive case series study conducted at a tertiary care centre between Feb 2023-March 2025. All 3 patients presented with neck swelling (Fig.I) along with constituitional symptoms in 2 patients. The clinico-epidemiological profile is presented in table I.

Table I : Clinico-Epidemiological Profile of Patients

CASE NO.	AGE / GENDER	DURATION OF CERVICAL LYMPHADENOPATHY	CONSTITUITIONAL SYMPTOMS	CO-MORBIDITIES	H/O CONTACT WITH ANIMALS	CLINICAL EXAMINATION LEVELS OF LYMPH NODES INVOLVED
1	40/M	10 days	Fever, weight loss	Nil	+	Left IB, II
2	48/M	2 weeks	Fever (on/off)	Diabetes mellitus	+	Left IB, II, III
3	52/F	3 months	-	Nil	-	Right IA, IB, II

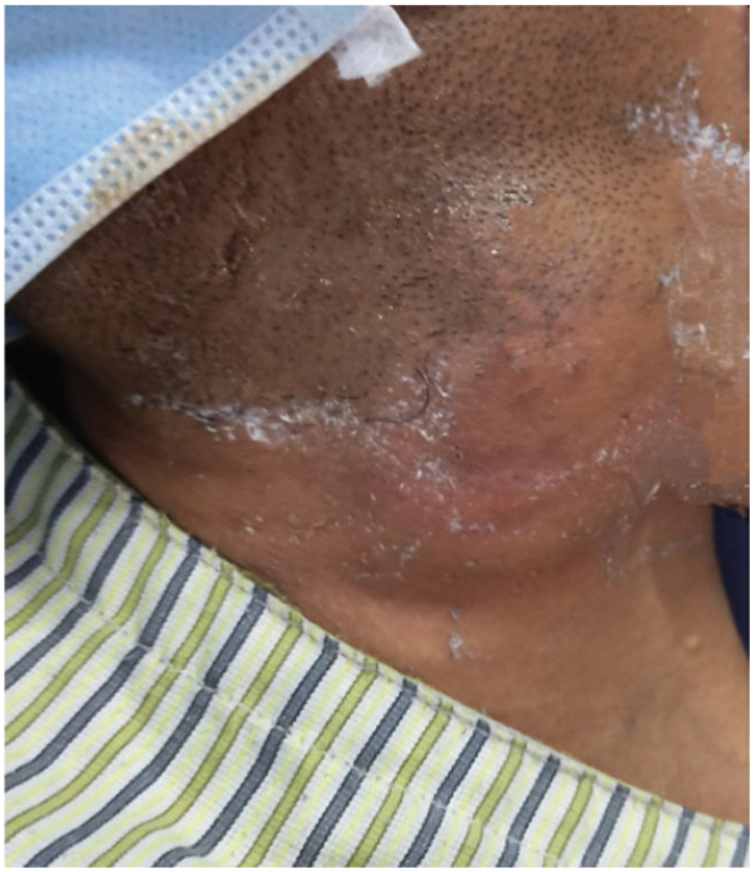

Fig. 1. Left cervical swelling (CASE 1)

Patients underwent complete ENT examination, blood, radiological & FNAC (fine needle aspiration cytology) investigations. The findings are mentioned in table II. ESR was raised in all 3 patients. In all the cases, chest x-ray was normal, mantoux was negative and sputum for AFB & CBNAAT was negative.

Table II: Investigations profile

CASE NO.	ESR	USG NECK	CECT NECK	FNAC
1	70mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis clumped together in the form of conglomerated hypoechoic abscess	Conglomerated multiloculated hypodense lesion showing rim enhancement & focal areas of necrosis (left IB,II,III,IV measuring 4.8x4.9x4.6cm, vol 40cc)	Granulomatous inflammation with abscessZN stain – negativePAS – negativeNo malignant cells
2	88mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis clumped together in the form of conglomerated hypoechoic abscess	Multiple matted lymph nodes showing focal areas of necrosis (left IB,II,III measuring 3.2x3.4x3.1cm, vol 20cc)	Granulomatous inflammation with abscessZN stain – negativePAS – negativeNo malignant cells
3	52mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis.	Enlarged lymph nodes with matted appearance showing peripheral enhancement & areas of necrosis (right IA.IB,II,III measuring 4.8x4.9x4.6cm)	Reactive lymphadenitisZN stain – negativePAS – negativeNo malignant cells

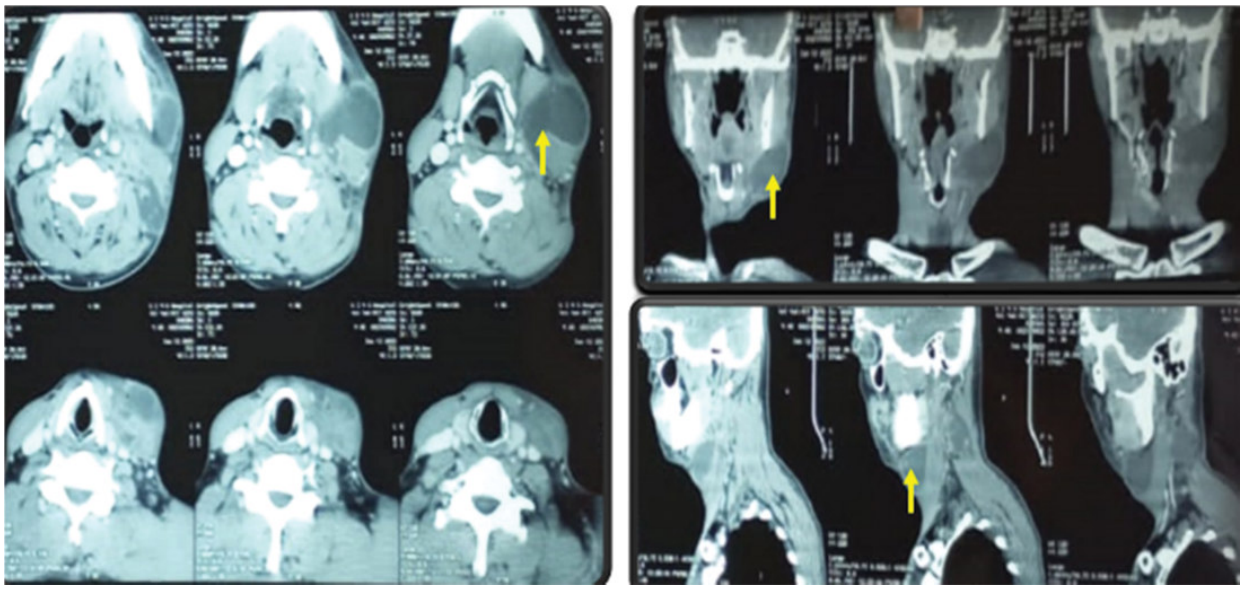

Fig. 2. CECT Neck

Table III: Management & treatment outcomes (WSSS- Warthin starry silver stain)

CASE NO.	ANTIBIOTICS	SURGICAL EXCISION OF INVOLVED LYMPH NODES	HISTOPATHOLOGICAL EXAMINATION	SERUM IMMUNOASSAY FOR BARTONELLA HENSLAE	OUTCOME (POSTOP FOLLOW-UP)
1	Ceftriaxone + metronidazole Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading histiocytes WSSS +	+	Recovery satisfactory Recurrence- nil
2	Ceftriaxone + metronidazole Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading histiocytes & giant cells WSSS +	+	Recovery satisfactory Recurrence- nil
3	Ceftriaxone Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading	+	Recovery satisfactory Recurrence- nil

All patients were initially treated with intravenous antibiotics (Table III) and anti-inflammatory drugs. In case 1, patient was already started on anti-tubercular treatment (ATT) by a physician before presenting to us based on FNAC findings. USG guided aspiration of pus was done in case 1 & 2. Gram stain showed plenty of pus cells and gram negative bacilli. Pus for CBNAAT was negative. As patients were not responding to the antibiotics and anti-inflammatory medications, CECT neck (Fig. 2) was done to evaluate further and patients were further managed with neck dissection (Fig. 3) and was sent for histopathology. (i.e., excision of involved lymph nodes; Fig. 4).

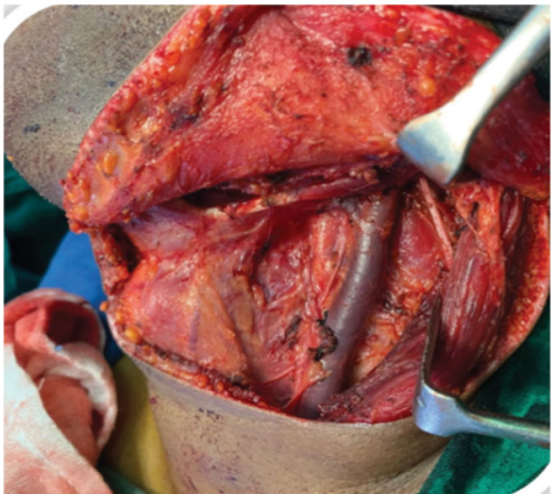

Fig. 3. Surgical site after excision of left side lymph nodes (level IB, II, III)

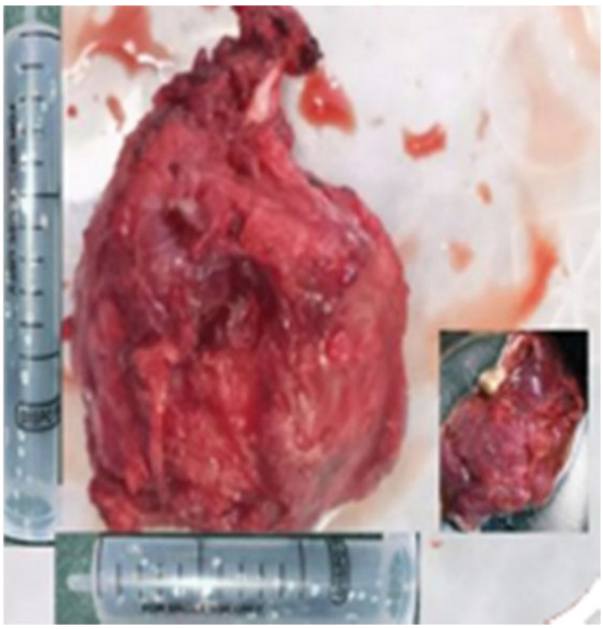

Fig. 4. Excised specimen of lymph nodes

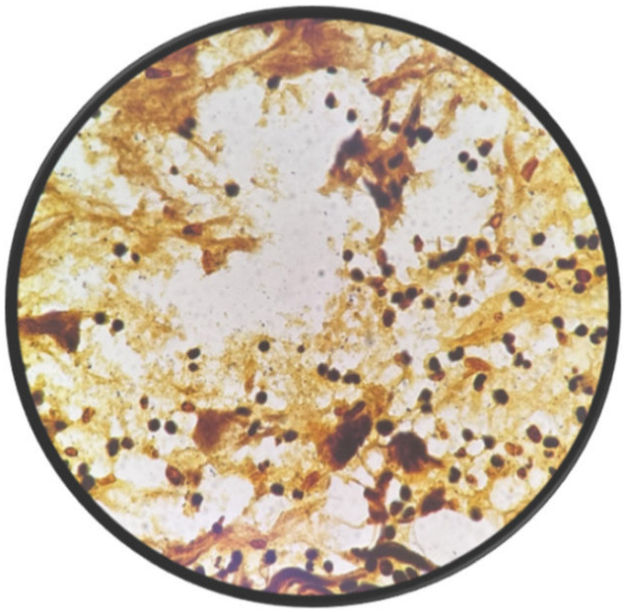

Fig. 5. Warthin starry silver stain (magnification 40X)

Histopathological examination showed classical findings of stellate necrosis with microabscesses and positive warthin starry silver stain (Fig. 5). Hence, patients were further assessed with serum immunoassay which was positive for Bartonella Henselae. Patients were further managed postoperatively with oral antibiotics for a period for 2 weeks. In case 1, ATT was stopped after serological immunoassay confirmation. All the patients were followed up for a period of 6 months and recovery was satisfactory. There was no recurrence of symptoms.

Discussion

CSD is a benign, self-limiting infectious disease caused by Bartonella Henselae. The classical presentation of CSD is small reddish papular rash which develops 3-10 days after a cat scratch, followed by a prolonged regional lymphadenopathy after another 14 days, with a self-limiting outcome within 2-4 months.[4] The atypical variety of CSD has a broader clinical spectrum which includes fever, abdominal pain, multiregional lymphadenopathy and multiorgan involvement affecting the eyes, liver, spleen, central nervous system, skin and bones.[5,6]

Diagnosis of CSD is made when at least two of the following three criteria are fulfilled:

1. Presence of clinical symptoms typical for CSD,
2. Serological detection of antibodies against *B. Henselae* including negative serological results for other infectious diseases,
3. Detection of Bartonella DNA in extirpated lymph nodes or aspirated pus. Other diagnostic criteria are also adapted as suggested by Margileth AM[7] which include (a) cat contact history, (b) splenic micro-abscesses on CT scan, (c) positive IFA assay for *B. Henselae* and (d) granulomatous inflammation of a lymph node. In many of the patients, the history of a cat scratch may not be remembered by the patient. Also, FNAC and radiological findings may be inconclusive making it difficult to diagnose the condition. Thus, the diagnosis of CSD remains a challenge for the clinician in cases of cervical lymphadenopathy.

In our case series, case 1 was started on ATT by an outside physician i/v/o granulomatous disease on USG & FNAC findings without any confirmation of tuberculous aetiology. As the patient didn't respond to the medications,

he had visited our hospital and was further managed as per the protocol mentioned in table II & III. Proper history and essential diagnostic investigations helped in stopping the unnecessary usage of ATT in the patient. The other 2 cases were also treated, according to their clinical presentations.

Case-to-case based approach should be advocated in patients presenting with cervical lymphadenopathy where a proper clinical history and examination helps in having a differential diagnosis. Radiological and pathological investigations helps in narrowing the diagnosis. Serological tests like immunoassays should be done wherever necessary and if serological testing is not available, one should not hesitate in excising the involved lymph nodes and subjecting the specimen to histopathological examination, microbiological test and molecular study to clinch the diagnosis. A proper insight into the history of "cat scratch" preceding the initial presentation to the clinician can help in the diagnosis especially when all corroborative radiological & laboratory analysis for tuberculosis and other granulomatous diseases is negative.

Conclusion

Cat Scratch Disease though rare should be included in the differential diagnosis of lymphadenopathy in the head and neck region to avoid unnecessary treatment especially in cases with history of contact with animals.

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