

## UNUSUAL CLINICAL PRESENTATION OF CAT SCRATCH DISEASE – A PROFILE

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### ABSTRACT:

Cat scratch disease (CSD) is a syndrome that is characterized by regional lymphadenopathy after a cat scratch or bite. The causative agent of CSD has been controversial. *Bartonella* species, most commonly *B. Henselae* and sometimes *B. Clarridgeiae* is implicated as the cause. A few patients have developed a serologic reaction to *Afipia Felix Bacilli*. CSD manifests as painful regional lymphadenopathy presenting for several weeks to months after a cat scratch. Occasionally, infection may disseminate to produce more generalized lymphadenopathy and systemic manifestations of lymphoma.

CSD occurs worldwide and the animal implicated is usually a kitten. In United States approximately 24,000 cases

occur annually, resulting in over 2,000 hospitalizations. About 90% of the patients have a history of exposure to cats and a cat scratch or bite have occurred in 75% of these individuals. There is no evidence that the agents of CSD produce illness or infections in cat. CSD occurs only in humans. Children are more commonly affected than adults. Mostly occur in summer when fleas are active. The flea may serve to transmit infection between cats, it is not known whether humans can be infected through the bite of an infected flea.

In this report we describe a rare case of Cat Scratch Disease with its clinico pathological manifestations and a brief summary of its management.

**Key words:** Cat-Scratch Disease, *Bartonella*, case report

### INTRODUCTION:

CSD was first recognized as a clinical entity in the U.S by Foshay in early 1930s, during the course of the studies in Tularemia(1). An antigen he prepared from the pus removed from affected Lymph Node produced a positive reaction on intradermal injection into patients with CSD. At the same time Debre in France, recognized the occurrence of suppurative adenitis in children with negative tuberculin test but with numerous cat scratches. Debre was able to study patients with positive skin tests for CSD and this led to the first clinical description of this disease in 1950. In 1983, Wear and associates demonstrated the pleomorphic Gram negative bacilli in lymphnode obtained from children suspected to suffer from CSD by histopathological examination using Warthin-Starry silver impregnation stain(2). The incidence of the disease is unknown since there is neither a commonly available means of diagnosis nor a systematic reporting. CSD should be suspected if the patient has a positive history of exposure to cats and develops lymphadenopathy along with skin lesions.

### CASE REPORT:-

An 18 year old male from Chennai, India presented with complaints of painful swelling of the right side of neck for past 30 days. The swelling was sudden in onset, gradually progressive in nature, and was associated with evening rise in temperature.

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On examination, a swelling was seen on the right side of the neck 2x3cm, smooth, soft, tender mobile and deep to the Sternocleidomastoid muscle (SCM), extending between the junction of middle one third and lower one third of SCM, to the region about 2 finger breadths above the medial one third of right clavicle. The swelling was non pulsatile, non translucent, with no impulse on coughing and did not move with deglutition or on protrusion of tongue.

There was no past history of recurrent cough, loss of appetite, or decrease in weight or contact with cat or any other pet animals.

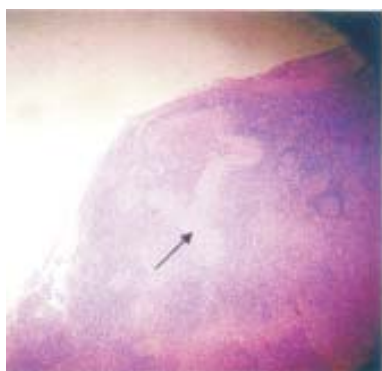
All blood investigations were normal. Mantoux test and chest X-ray were negative for tuberculosis. Fine Needle Aspiration Cytology (FNAC) of the lymphnode showed a granulomatous inflammation probably of tuberculous origin. At this point, with a working provisional diagnosis of tuberculous lymphadenitis, patient was started on empirical Anti Tuberculous Treatment.

Excisional biopsy of the mass was done. Intraoperatively, a suppurative lymphnode which was seen adherent to the internal jugular vein was peeled off and sent for histopathological examination. Cheesy material was seen inside the mass which was aspirated and sent for culture and sensitivity including Acid Fast Bacilli culture.

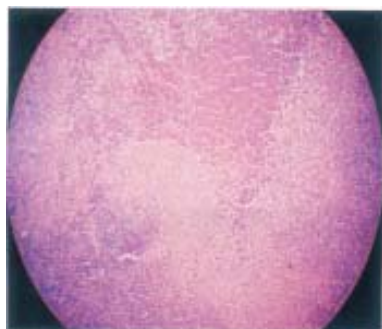
Culture showed no growth. Acid Fast Bacilli and Fungal stains were Negative.

Histopathological Examinations showed partial distortion of lymph node architecture. **Stellate Abscesses** were conspicuously seen in some fields while in other areas there was encirclement by epithelioid histiocytes. (Figure 1 and 2) Also, granulomas consisting of epithelioid cells and giant cells were noticed infrequently. With these histopathological features a diagnosis suggestive of a CSD was made after a lot of deliberation and consultations with experts in the field of histopathology.

**Tissue Sections Stained With Haematoxylin & Eosin Stain Showing Stellate Abscesses**



**Fig: 1 (magnification 100x)**



**Fig: 2 (magnification 400x)**

Warthin-Starry silver stain- a non-specific silver stain was done-but was not able to identify any microorganisms.

Blood was sent to the Centre for Diseases Control and Prevention, or CDC, along with a presumed diagnosis of CSD. The CDC identified antibodies to B henselae with a titer of 1: 130 (normal < 1:64).

With this, the diagnosis of CSD was confirmed and, anti tuberculous treatment was discontinued and Doxycycline 200 mg 1 bid was started for a period of 2 weeks. Patient is being followed up regularly and there has been a significant improvement in the patient’s general condition.

**DISCUSSION:**

Chronic regional lymphadenopathy is the most common clinical feature of CSD and usually develops about 2 weeks after the scratch or contact with cat. An inoculation site may be detected in more than two thirds of patients when actively sought. Primary skin papule or pustule occurs within 3-10 days from the time of scratch or contact. Most primary lesions persist for about 1-3 weeks. Low grade fever lasting for several days occurs in about 30% of patients. Malaise or fatigues is noted in 25% and headache and sore throat in about 10% of patients.

Lymphadenitis is the major manifestation of CSD. The enlarged tender lymphnodes are most commonly found in the head or neck areas. The axillary nodes are frequently involved, less commonly epitrochlear, inguinal, femoral and

rarely supraclavicular nodes may be enlarged. Single node involvement occurs in almost half of the patients, involvement of multiple lymphnodes in the same site occur in about 20% of patients.

About one third of patients have lymphnode enlargement involving several sites. Node enlargement persists for 2-4 months, but has been known to last for two years. Suppuration of involved lymphnode occurs in 10% of patients(3).

Atypical manifestation of CSD may be seen in some patients (Table 1). Symptoms and signs of Oculoglandular syndrome or Parinaud Syndrome presents as an ocular granuloma or conjunctivitis with preauricular lymphadenopathy.

**Table 1 : Extra –lymphatic manifestations of CSD**

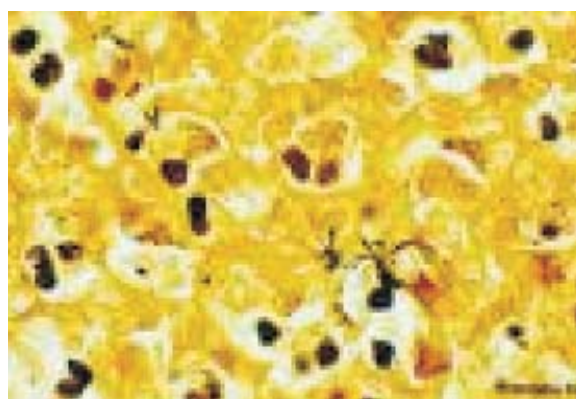
Symptoms and signs	Frequency	Symptoms and signs	Frequency
Fever (38.3 <sup>o</sup> to 41.2 <sup>o</sup> C)	28%	Sore throat	7%
Malaise Fatigue	30%	Exanthem	5%
		Conjunctivitis	3.3%
Headache	13%	Arthralgia	2.5%
Anorexia, emesis	14%	Seizures, coma	3%
Splenomegaly	9.5%	Blindness	2%

**Pathology:** Infections by B.Henselae can produce two entirely different pathological reactions depending on the immune status of the host

1. CSD which is a granulomatous inflammation with stellate necrosis.
2. Bacillary angiomatosis

Initially, in CSD, lymph node shows lymphoid hyperplasia. Later, scattered granulomas appear and some may contain central areas of necrosis with rare multinucleated giant cells. As the disease progresses, stellate areas necrose and coalesce to form one or more abscesses. If the lymph node capsule ruptures pus extends to the contiguous areas.

**Bartonella Henselae in Warthin Starry Silver stain**



**Fig 3 :Magnification 400x**

**Diagnosis** CSD should be suspected if the patient has a history of exposure to cats and develops lymphadenopathy and a skin lesion. The diagnosis can be confirmed by pathological examination of the involved nodes. Sometimes, tiny bacilli in clusters can be seen in biopsy samples stained with Warthin Starry silver stain (figure 3). The gold standard for diagnosing CSD is by an indirect immunofluorescent antibody assay or IFA (4). If CSD is present, high titers of antibody will react to the *B. henselae* antigen. Titer of 1:64 or higher is considered positive. The identification of *B. Henselae* 16 S ribosomal Ribo Nucleic Acid genes in biopsy material by Polymerase Chain Reaction Amplification with specific oligonucleotide primers can also be diagnostically useful, but these methods are not commercially available(5).

**Treatment:** This disease is generally self limiting. However tender regional lymphadenopathy and systemic symptoms may be debilitating to the patient. Hence early detection and treatment need to be started before any systemic complications occur. The oral antimicrobial agents that can be used include ciprofloxacin, Gentamicin sulfate, Rifampin, TMP – SMX, Doxycycline is shown in table 2.

**Table 2 : Antibiotic Therapy for CSD (6)**

Antibiotic	Route	Dosage	Frequency	Duration
Ciprofloxacin	PO	20-30 mg/kg	Q12h	10-21 days or more
Gentamicin sulfate	IM or IV	5 mg/kg	Q8h	5-10 days
Rifampin	PO	10-20 mg/kg (max 600 mg/kg daily)	Q8-12 h	10-21 days
TMP – SMX	PO	10-20 mg/kg TMP50-100 mg/kg SMX	Q8-12 h	10-14 days
Doxycycline	PO	3-4mg/kg	BD	10-14 days

TMP - SMX : Trimethoprim - Sulfamethaxazole

**Differential diagnosis:** Lymphadenitis occurs in cases like Koch's Adenitis, Atypical Mycobacterial Infection, Tularemia, Toxoplasmosis, Infectious mononucleosis, Lymphogranuloma venereum, Coccidioidomycosis and tumors.

## CONCLUSION:

Cat-Scratch Disease is a self limiting chronic regional lymphadenitis which can occur in those who have contact with cats. So it should be borne in mind as a differential diagnosis, while evaluating chronic lymphadenitis.

The following conclusions can be inferred with this clinical experience-

- This unusual case suggests a need to create an awareness regarding this potentially dangerous condition if left untreated.
- All patients with cervical lymphadenopathy need focused histopathological diagnosis.
- There may be varied clinical presentation of the same pathological entity.
- Almost all the chronic granulomatous conditions behave similarly in the modes of presentation.
- Empirical treatment with Antituberculous drugs should be instituted only for a selected group of patients without any definitive histopathological diagnosis.
- A proper insight into the history of "Cat Scratch" preceding the initial presentation to the doctor can help in diagnosis especially when all corroborative radiological & laboratory analysis for Tuberculosis is negative.
- Sometimes, unusually (10% of cases), even without history of contact with cats, diagnosis can be clinched based on Histopathology.

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