

Children with Mycobacterial Cervical Lymphadenitis: a Case Series

Mikobakteriyel Servikal Lenfadenitli Çocuklar: Vaka Serisi

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ABSTRACT

Introduction: Lymphadenopathy is a common clinical problem in pediatric age group. Tuberculous lymphadenopathy is a prominent cause of peripheral adenopathy amongst children in the developing countries. Tuberculous lymphadenitis is among the most frequent presentations of extrapulmonary tuberculosis. In this article, we presented five pediatric cases with mycobacterial infection detected in cervical lymph nodes.

Case Presentation: First case admitted with a painless swelling in cervical and axillar regions and pathologic examination of the extirpated lymph node showed necrotizing granulomatous lymphadenitis. Second case presented with two months history of abdominal pain and painless swelling of right cervical region and Mycobacterium tuberculosis (MTB) was grown in culture from the lymph node. Third case admitted with a painless cervical mass, her sputum was found positive for MTB. Fourth case was admitted with one year history of swelling that became fistulized in 6 months and lymph node culture was found positive for MTB. Fifth case, admitted with a painful swelling in left upper gingival mucosa and extirpated lymph node showed chronic granulomatous inflammation.

Conclusion: Pathological and microbiological examination of tissues such as cervical enlarged lymph nodes should be evaluated for diagnosis of tuberculous infections.

Keywords: Cervical, Child, Mycobacterium Tuberculosis, Tuberculous Lymphadenitis

ÖZET

Giriş: Lenfadenopati çocukluk döneminde sık karşılaşılan bir klinik problemdir. Tüberküloz lenfadeniti gelişmekte olan ülkelerde çocuklarda görülen periferik adenopatinin belirgin bir nedenidir. Tüberküloz lenfadenopati akciğer dışı tüberkülozun en sık görülen bulgusudur. Bu makalede, servikal lenf nodlarında mikobakteriyel enfeksiyon saptanan beş çocuk olgu sunuldu.

Vaka Sunumu: İlk vaka servikal ve aksiller bölgelerdeki ağrısız şişlikle başvurdu ve alınan lenf nodunun patolojik incelemesinde nekrotizan granülomatöz lenfadenit görüldü. İkinci vaka, iki aydır devam eden sağ servikal bölgede ağrısız şişlik ve karın ağrısı öyküsü ile görüldü ve lenf nodu kültüründe Mikobakterium tüberkülozis (MTB) üredi. Üçüncü vaka ağrısız servikal kitle ile başvurdu ve balgam kültürü MTB için pozitif bulundu. Dördüncü vaka, son 6 ay içinde fistülize olan şişlik öyküsü ile başvurdu ve lenf nodu kültürü MTB için pozitif bulundu. Beşinci vaka, üst gingival mukozada ağrısız şişlik ile başvurdu ve alınan lenf nodu kronik granülomatöz inflamasyonla uyumlu idi.

Sonuç: Geniş servikal lenf nodları gibi dokuların patolojik ve mikrobiyolojik incelemeleri tüberküloz enfeksiyonlarının tanısı için değerlendirilmelidir.

Anahtar kelimeler: Servikal, Çocuk, Mikobakterium Tüberkülozis, Tüberküloz Lenfadenit

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INTRODUCTION

Tuberculous cervical lymphadenitis is the most common manifestation of extra-pulmonary tuberculosis. Peripheral lymph node enlargement has many causes in children, including infectious and malignant conditions. High index of suspicion is needed for diagnosis of tuberculosis in such cases. Tissue specimens for pathological examination, and for mycobacterial culture and antimycobacterial drug susceptibility is important in timely decision for appropriate treatment(1). Five pediatric cases are presented here with mycobacterial infection detected in cervical lymph nodes.

CASE PRESENTATION

Case 1

A 9-year-old girl with Down's syndrome was admitted with painless swelling in cervical and axillary regions during the last two weeks. Physical examination revealed enlarged lymph nodes in posterior cervical, left supraclavicular and axillary regions. Chest x-ray (CXR) showed mediastinal enlargement and left axillary mass with millimetric calcifications (Figure 1).

Figure 1. Mediastinal enlargement, soft tissue mass with calcification in left axillary region



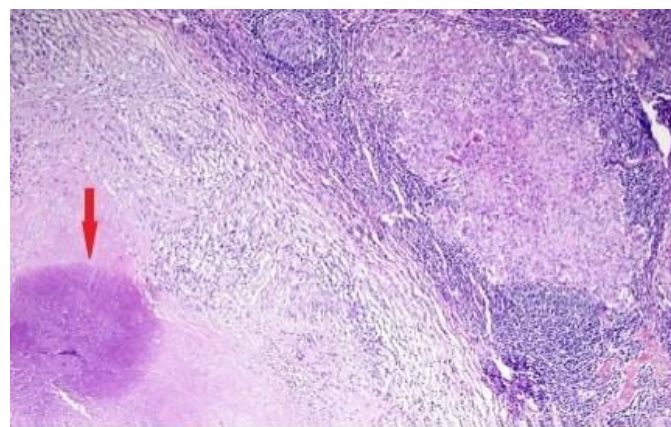
Thorax computed tomography (CT) revealed infiltration in upper left anterior segment and multiple calcifications in mediastinal, supraclavicular and left axillary lymph nodes (Figure 2).

Figure 2. Thorax CT showing extensive calcifications and infiltration in upper left anterior segment



Tuberculin skin test (TST) induration diameter was 25 mm. Pathologic examination of the extirpated lymph node showed necrotizing granulomatous lymphadenitis (Figure 3). Early morning gastric aspirates and lymph node cultures were negative. Treatment was started with isoniazid, rifampicin, and pyrazinamide and her findings regressed following 12 months of treatment.

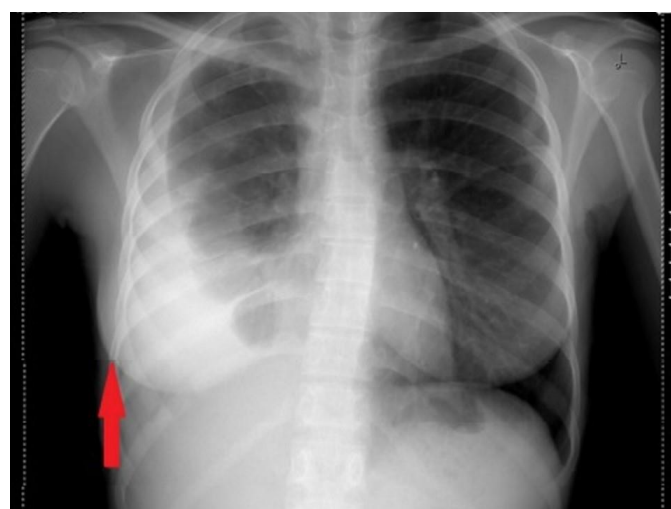
Figure 3. Caseous necrotizing granuloma in lymph node



Case 2

A 15-year-old girl presented with two months history of abdominal pain and painless swelling of right cervical region. Physical examination revealed right supraclavicular lymph node, 2x1 cm, in size. Decreased breath sounds were localized on the right side of the lung. Abdominal palpation revealed mild periumbilical tenderness. Laboratory investigations revealed a white blood cell of 9700/mm³ and erythrocyte sedimentation of 65 mm/h. CXR showed pleural effusion in right lung (Figure 4). TST showed induration of 35 mm. Thorax CT revealed pleural effusion and atelectasis in the right lung. Sputum and peritoneal fluid cultures results were negative. Lymphadenectomy was performed in order to rule out malignant causes, and M.tuberculosis was grown in culture from the lymph node. Treatment with isoniazid, rifampicin, pyrazinamide and ethambutol was started and she was healthy after one year treatment.

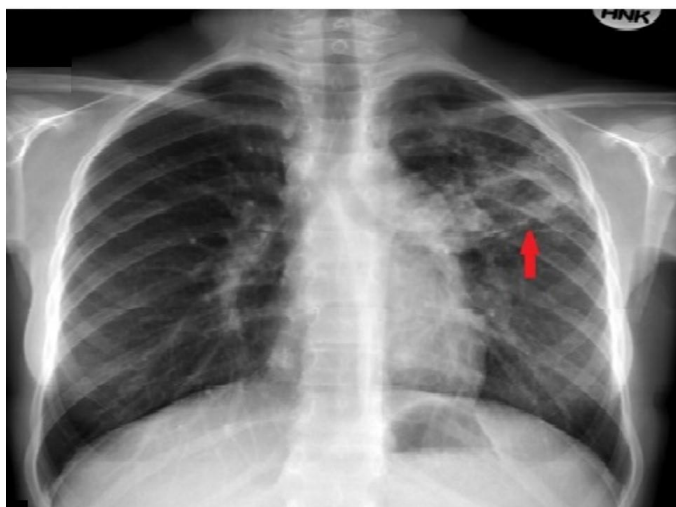
Figure 4. Pleural effusion and volume loss in right lung



Case 3

A 14 year-old-girl was admitted with a nine months history of painless cervical mass. Physical examination revealed cervical enlarged lymph nodes. CXR showed infiltration in left upper lobe with left mediastinal lymphadenopathy (Figure 5) and thorax CT revealed thick walled cavity in the posterior left upper lobe with parenchymal opacities. TST showed an induration of 18x20 mm. Family history revealed that her father had been diagnosed with TB. Her sputum was positive for *M. tuberculosis* and treatment was initiated with isoniazid, rifampicin, pyrazinamide and ethambutol and she recovered following one year treatment

Figure 5. Left upper lobe alveolar infiltration



Case 4

A 10- year- old girl was admitted with one year history of swelling that became fistulized in 6 months, and had been draining as a purulent mass below the mandible. Physical examination revealed submandibular multiple lesions suggesting scrofula (Figure 6).

Figure 6. Scrofula under mandible

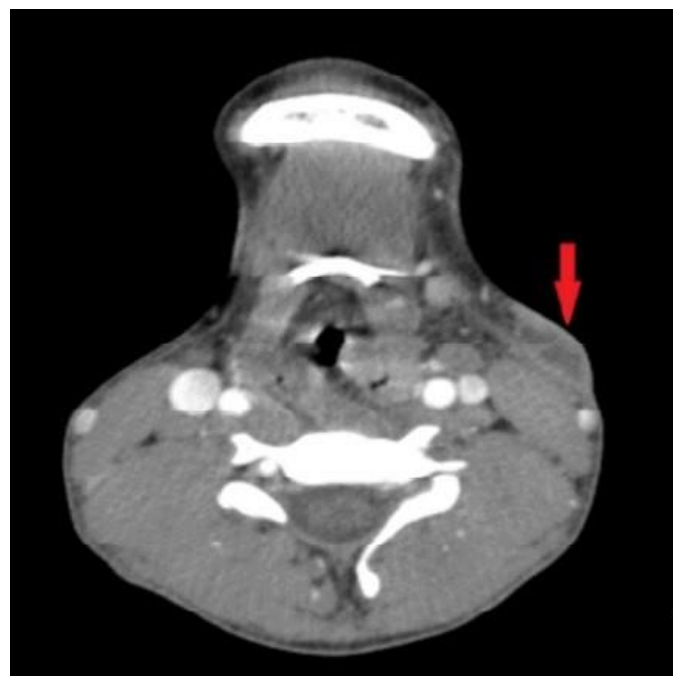


Acute phase reactants and CXR were unremarkable. Quantiferon testing was positive. Pathology of lymph nodes showed caseating granulomatous lymphadenitis. Lymph node culture was positive for *M. tuberculosis*. Patient's lesions were totally regressed following one year treatment with isoniazid, rifampicin and pyrazinamide.

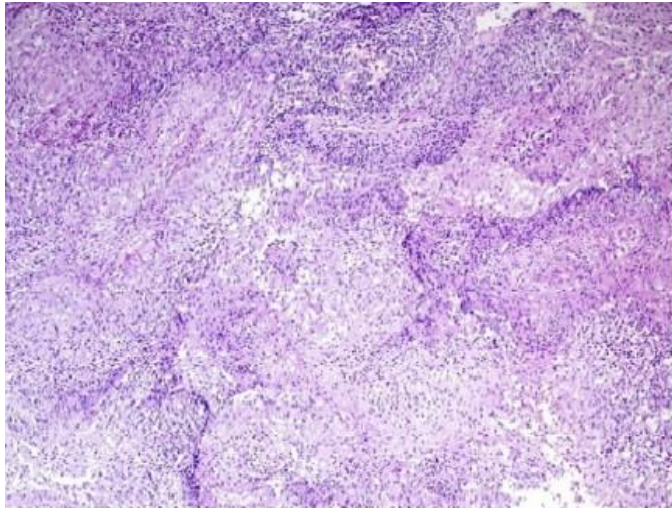
Case 5

A 17- year-old boy presented with a painful swelling in left upper gingival mucosa one month before. After one week, another swelling developed below left ear. Gingival lesion was regressed with antibiotics but the lesion below the ear persisted. Laboratory investigations and CXR were normal. Cervical CT showed a central hypodense mass, 50x15x10 mm in size, in front of left sternocleidomastoid muscle and another, 20x17x8 mm. in size in front of masseter muscle (Figure 7).

Figure 7. Left hypodense lesion



Fine needle biopsy revealed suppurative inflammation. Extirpated lymph node showed chronic granulomatous inflammation (Figure 8). Non-tuberculous mycobacteria grew in culture. Patient's lesions were totally regressed without any drug treatment.

Figure 8. Non-necrotizing epithelioid granuloma

DISCUSSION

Detection of TB lymphadenitis is a major challenge because its nonspecific clinical findings may overlap with other diseases. Various methods (PCR-based methods and DNA extraction protocols) have been widely used for TB diagnosis, however limited information about the usage of these techniques in the diagnosis of TB lymphadenitis has been published (2, 3). Culture remains the gold standard for confirmation of TB disease (4). However, it takes at least two weeks and have low sensitivity for the diagnosis of extrapulmonary TB. Therefore, in a suspected case, pathological examination of tissues such as cervical enlarged lymph nodes should be evaluated.

Among the cases presented here, in all but one (case three), cervical lymph nodes provided pathological and /or microbiological evidence for the specific diagnosis. The main complaint of case three was related to her cervical lymphadenopathy. Because as she could produce sputum, identification of acid fast bacilli in the smear helped diagnosis of TB in this patient. In case one, the diagnosis of pulmonary TB was considerably delayed until the child presented with extrapulmonary manifestations. Calcifications noted in CXR, thorax CT findings and TST positivity suggested tuberculosis (5). Antituberculous treatment was started following the pathological examination of the extirpated lymphatic tissue.

Tuberculosis may be easily overlooked in adolescents, as in case two, who was a 15-year-old girl with long standing abdominal pain. This girl was seen firstly in a gynaecology clinic and was consulted with pediatric oncology. This caused a considerable anxiety in the family regarding the possibility of lymphoma. Lymphadenectomy facilitated the diagnosis of TB in a short time.

Scrofula may be present in 4%–11% of cases with TB lymphadenitis like case four. It's postulated that robust immune response to the mycobacterial antigens with initiation of antibiotics may develop this reaction (6). Her lymph node culture was positive for *M.tuberculosis* and lesions totally regressed with treatment.

Appropriate specimen handling for culture is important also for detecting growth of nontuberculous mycobacteria. At the first presentation of case five, fine needle biopsy was performed and it was reported as suppurative inflammation. Two months

later, the enlarged lymph nodes was excised revealing granuloma formation without caseification and nontuberculous mycobacteria was grown in culture. In such cases, therapeutic excision of affected lymph nodes should be performed.

CONCLUSION

Excisional biopsy of easily accessible lymph nodes provides an early diagnosis for mycobacterial infections, by histopathologically revealing the presence of granulomatous inflammation with caseous necrosis

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