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Case Report

Paediatrics Section

Castleman Disease Presenting with Cervical Adenopathy in a Four-Year-Old Girl: A Case Report and Review of Literature

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ABSTRACT

Castleman Disease (CD) is an uncommon cause of cervical lymphadenopathy in paediatric age group. Only few cases have been reported from outside Indian Subcontinent so far in paediatric age group (≤18 years), presenting with cervical adenopathy. A four-year-old girl child presented to the our OPD with bilateral enlargement of cervical lympho nodes. FNAC of cervical node revealed CD. Child responded well to conservative treatment and is in follow up without any of recurrence and need of surgery. This case highlights the overall benign course of disease in unicentric hyaline vascular type CD.

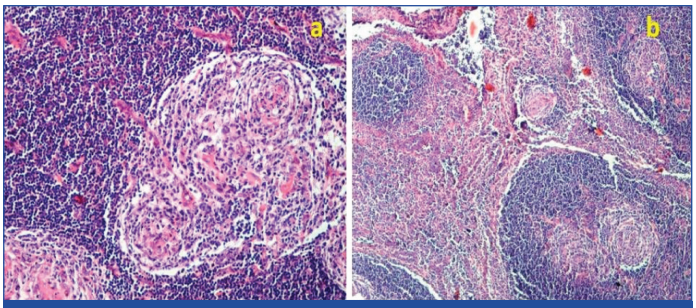
Keywords: Hyperplasia, Hyaline vascular, Neck

CASE REPORT

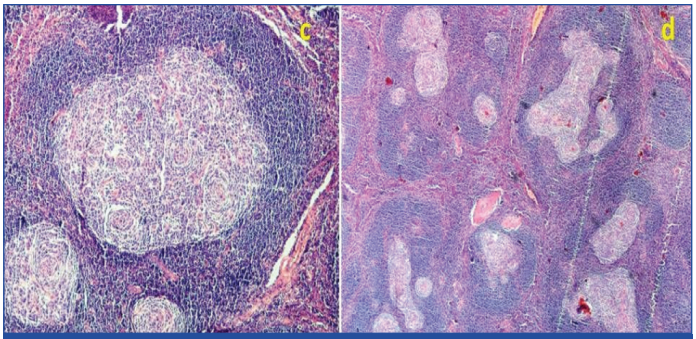
A four-year-old girl presented to paediatric clinic with history of swelling in neck region bilaterally for 18 months on right side and three months on left side. There was history of fever for last seven days before presenting to us. There was no ear discharge, dental caries, and abscess. There was no history of tuberculosis in family. Examination revealed multiple enlarged cervical nodes; largest node was of 4 cm × 3 cm on left side and 2 cm × 2 cm on right side. Bilateral nodes were hard in consistency, non-movable, fixed to underlying structures, non-tender and no signs of inflammation. Oral examination showed no dental caries or tonsillar enlargement. She had no pallor, icterus, cyanosis, clubbing and lymphadenopathy elsewhere. There was no hepatosplenomegaly. Rest of systemic examination was normal. Possibility of bacterial adenopathy, tubercular adenopathy, malignant lymphadenopathy, and HIV were kept.

She was started on oral amoxicillin plus Clavulanic acid (40 mg/kg/day of amoxicillin in BD dose) for two weeks. After two weeks, swelling decreased remarkably on right side with little change on left side. Further diagnostic work up was planned in view of non-resolution of swelling on left side. Haematological parameters revealed Haemoglobin: 10.6 gm/dL, total leucocyte counts: 13, 800/µL, differential count N65 L32 E01 M01, Platelet count: 2.25 lacs. Blood biochemistry parameters were urea: 29 mg/dL (15-45), creatinine: 0.6 mg/dL (0.5-14), sodium: 135 meq/L (135-145), potassium: 5 meq/L (3.5-5.5), alkaline phosphatase: 105U/L (30-120), total protein: 5.9 gm/dL (6.4-8.5), albumin: 4.2 gm/dL (3.2-5.5), AST: 98 U/L (9-37), ALT: 59 U/L (10-40), total bilirubin: 0.5 mg/dL (0.08-1.2), direct bilirubin: 0.1 mg/dL (0.01-0.3), LDH: 1032, C reactive protein: 3.3 mg/L (upto 10), ESR: 18 mm. Human Immunodeficiency virus and test for hepatitis B surface antigen was negative. Mantoux, chest radiograph, gastric aspirate for acid fast bacilli were normal. Peripheral smear was unremarkable.

Ultrasonography of abdomen revealed multiple mesenteric lymph nodes of maximum size 9.8 mm. No other pathology was indentified. Computed Tomography (CT) of thorax, abdomen and pelvis was normal. Fine Needle Aspiration Cytology (FNAC) of left cervical node revealed polymorphous population of lymphoid cells. No granuloma/atypical cells seen. Tissue biopsy of left cervical node revealed marked hyperplasia of lymphoid follicles involving cortex and medulla. Many follicles were radially pierced by branching blood vessels, many of them were hyalinised [Table/Fig-1a].



[Table/Fig-1a-b]: a) Germinal center with radially penetrating sclerosed blood vessels – hyaline vascular (lollipop) lesion (200X); b) Follicles with twin germinal centers and expanded inter-follicular area showing many sclerosed vessels (100X).



[Table/Fig-1c-d]: c) Follicle with expanded mantle zone (onion peel like arrangement comprising of small lymphocytes (100X); d) Micrograph showing many follicles, inter-follicular sclerosis, sclerosed and vascular germinal center (40X).

Twin germinal centres were seen in many follicles [Table/Fig-1b]. Mental zone lymphocytes were arranged in concentric ring around follicles. Inter-follicular area was expanded and showed increased vascularity. Dendritic cell in germinal centres were hyperplastic with lymphocytic depletion [Table/Fig-1c,d]. Based on these features, diagnosis of CD of hyaline vascular type was made.

Presently, she is in follow up for last two years without undergoing any surgical intervention. Her lymphadenopathy has also regressed remarkably. At present, she is not on any medication.

DISCUSSION

CD is a benign lymphoproliferative disorder of lymphatic system, first described by Benjamin Castleman in 1954 in a 66-year-old female [1]. Since then many cases have been reported in literature citing its rarity, unusual presentation. The disease has a known

prevalence of 1 in 100,000 with more number of cases occurring in adults than paediatric age group (< 18 years) [2]. Thorax is the most common site of presentation for both adults and children [3]. Extra-thoracic sites involved in children are: abdomen, neck, axilla in decreasing order of frequency [4]. CD can be further divided in to unicentric (single group) and multicentric (multiple group). Histological classification system categorizes it in hyaline vascular, plasma cell type and mixed type [5].

The presentation poses a diagnostic challenge to treating clinicians as it is not uncommon to misdiagnose such condition with tuberculosis, lymphoma. Cervical neck nodes are an uncommon site. Only few patients have been described in literature from outside Indian subcontinent, the largest series by Rabinowitz MR et al., and Linkhorn H et al., [6,7]. Indian patients were not included in the review by Rabinowitz MR et al. So, we collected the data of all India patients who presented with cervical lymphadenopathy and compared with Rabinowitz MR et al., study.

CD is a rare diagnosis in paediatric age group. The common causes of lymphadenopathy like infection, tuberculosis, malignancy, were ruled in present case with detailed investigations. Diagnosis was established with histological findings as discussed in [Table/Fig-1a-b,1c-d].

There are many case reports citing unusual locations. The most common site of presentation is thoracic cavity [3]. Our case presented with bilateral neck nodes in cervical region. Rabinowitz MR et al., reported 29 paediatric neck node CD cases through PubMed search from 1986 to 2012 [6]. Although, Indian cases were reported in the same period, none were included. This led us to search for cases of CD with only neck node presentation in paediatric age group (≤18 years) in PubMed from 1986 to 2015. We used following keywords for search: CD, children, India, neck nodes. We found six more cases in literature published from Indian Subcontinent [8-13].

We know that CD is rare in paediatric age group with varying degree manifestation based on their site. Cervical lymphadenopathy is unusual site of presentation in paediatric population [3]. Our group of patients presented with median age of onset 12 years same as described previously by Rabinowitz MR et al., [6]. Our patient is the youngest patient to have presented with CD. There was no preference of sex in Rabinowitz MR et al., study. But, we found more number males (4) affected than females (3). This bias may be due to less number of cases reported so far or shows parental sexual bias in seeking health advice for male child. Presentation, location, size of all our seven cases (including ours) is similar to Rabinowitz MR et al., study. Difference lies in laterality of presentation with left side predominance in Rabinowitz MR et al., study and right side predominance in our Indian group of patients. Besides, present patient presented with bilateral cervical nodes, not ever reported both cohorts. CT was the most important imaging modality for evaluation of local pathology and distant metastasis in Rabinowitz MR et al., study. But, our Indian cohort used USG in two patients and CT in two patients. Imaging modality for distant metastasis depends on multiple factors like availability, list of differential diagnosis. As such, CT and MRI both can serve the purpose of staging and planning the surgery in case of multicentric disease.

Fine needle aspiration was performed in only three cases in the study by Rabinowitz MR et al., showing nonspecific findings [6]. It was performed in 5/7 cases in our cohort of patients. Findings of FNAC

Serial Number	Parameter	Rabinowitz MR et al., (n-29 cases), [6]	Varma S et al., [8]	R RS et al., [9]	Kansara AH et al., [10]	Kausar Z et al., [11]	Kumar KM et al., [12]	Melkundi RS et al., [13]	Present Study
1	Sex (m/f)	14/15	Female	Male	Male	Male	Male	Female	Female
2	Age (media)	12 years	14 years	12 years	12 years	13 years	8 years	18 years	4 years
3 (a)	Mode of presentation	6/29 (asymptomatic)	Generalised tonic seizures	---	--	--	--	Right sided neck mass	--
(b)	Enlarging neck mass	12/29	yes	yes	yes	yes	yes	yes	yes
4 (a)	Location (level II/III)	10 cases	Cervical	Non Specified	Anterior triangle of neck	Not specified	Not specified	Not specified	II/III (both sides)
(b)	Level V	6 cases	--	--	--	--	--	--	--
5	Size	2-10 cm	Not specified	7×4 cm	4×6 cm	3×1.5×1 cm	4×3.5 cm	4×2×5 cm	4×3 cm (left side)/2×2 cm (right side)
6	Side (right/left)	10/12	Right	Right	Left	Right	Right	Right	Bilateral
7	Most common imaging modality performed for neck nodes	CT (14 cases)	Not done	Not done	Not done	Not done	USG	CT scan	Not done
8	Most common imaging modality for distant metastasis	CT (3 cases)	Not done	Not done	Not done	CT	USG	USG	CT
9	FNAC	2/3 (Reactive lymphoid hyperplasia)	Not done	Reactive hyerplasia	Not done	granulomatous inflammation	small and large lymphocytes, tingible body macrophages admixed with fibrotic strands in haemorrhagic background	moderate cellularity comprising of small lymphocytes in dys-cohesive and in small clusters	Polymorphous population of lymphoid cells
10	Histopathology	Hyaline vascular type (28/29)	Hyaline vascular	Hyaline vascular	Hyaline Vascular	Hyaline vascular	Hyaline vascular	Hyaline vascular	Hyaline vascular
11	Treatment modality	Excision (28/29)	Only for seizures	Excision	Excision	Excision	Excision	Excision	Antibiotics and follow up
12	Prognosis with mean follow up of 31 months	No Recurrence	Not mentioned	6 month after surgery , asymptomatic	Not Mentioned	Not mentioned	6 month follow up ; no recurrence	No Recurrence found after 1 year follow up	2 year follow up : no recurrence

[Table/Fig-2]: Comparison of clinical presentation, histological type, treatment modality and outcome of Indian patients with Rabinowitz MR et al., study [6].

were non-diagnostic and non-specific as mentioned in [Table/Fig-2]. FNAC has limited role in diagnosing such cases. Tissue diagnosis was done in all cases reported so far. Hyaline vascular type is the most common type in Indian cohort of unicentric cervical neck node patients, same as described in 28/29 cases of Rabinowitz MR et al. Local excision is the treatment modality of choice as done in most of cases with good results outcome. Although, our patient improved with course of antibiotics and required no surgical excision in follow up period.

CONCLUSION

In conclusion, our patient is the youngest to have presented with bilateral cervical neck nodes and CD. There appears to be no difference in presentation, histological type, R_x modality and prognosis among different age groups.

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