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Incidence Of Lymphoma Among Children With Asymmetrical Tonsillar Hypertrophy.

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ABSTRACT

Pediatric lymphomas are the third most common malignancy in children and account for 13% of all childhood cancers. Sixty per cent of these lymphomas are non-rapidly growing Hodgkin's lymphomas. Actual need for tonsillectomy to rule out lymphoma in cases of unilateral asymmetrical tonsillar enlargement is a matter of debate. Several articles have suggested that the presence of unilateral asymmetrical tonsillar enlargement in children is a sign of the possibility of an underlying lymphoma. Some authors have also recommended that routine tonsillectomy is not indicated given the low incidence of tonsillar lymphoma in the pediatric. It is a retrospective study. Data of all children aged between 4 to10 years that underwent tonsillectomy for asymmetrical tonsillar enlargement at an Indira Gandhi Govt General Hospital and Post Graduate Institute, Pondicherry during August 2011 to August 2014 was collected. Incidence of Non- Hodgkins lymphoma among children with asymmetric tonsillar hypertrophy was found to be 3.5 % in our study. Males were affected more than females. We conclude that elective tonsillectomy is indicated to rule out lymphoma in children with asymmetrical tonsillar hypertrophy associated with risk factors such as cervical adenopathy, hepatosplenomegaly and rapid asymmetrical enlargement of tonsil.

Keywords: Lymphoma, Tonsillar asymmetry, Pediatric lymphoma, Tonsillectomy.

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INTRODUCTION

Pediatric lymphomas are the third most common malignancy in children and account for 13% of all childhood cancers [1, 2]. Sixty per cent of these lymphomas are Non- Hodgkin's lymphomas [2].

Lymphoblastic lymphoma, Burkitt lymphoma, anaplastic large cell lymphoma (ALCL) and diffuse large B-cell lymphoma (DLBCL) are commonly occurring Non-Hodgkin's lymphoma (NHL) in pediatric population. Follicular lymphomas (FL) is primarily a disease of adulthood with a median age of 59 years and is rare in pediatric patients [3]. Non Hodgkins lymphoma occurs 2 to 3 times more common boys than in girls [12]. Abdominal involvement is the most common presentation followed by mediastinum and pleura [12]. However, in the head and neck region, the most common site for localization is the palatine tonsil [4, 12, 13].

Lymphoid tissue in the Waldeyer's ring is sparse at birth. This is followed by a period of proliferation and eventual involution [5]. The proliferation is a true hyperplasia induced by immunologic activity, notably expansion of B cells [5, 6]. Occasionally there is unilateral tonsillar enlargement or asymmetrical hypertrophy. Actual need for tonsillectomy to rule out lymphoma in cases of unilateral asymmetrical tonsillar enlargement is matter of debate. Several articles have suggested that the presence of unilateral asymmetrical tonsillar enlargement in children is a sign of the possibility of underlying lymphoma. Some authors such as Randall et al [11] have recommended that routine tonsillectomy is not indicated given the low incidence of tonsillar lymphoma. Significant asymmetry of the tonsils, especially if there is rapid enlargement, may have a serious underlying disorder such as lymphoma, lipid storage disease, or Langerhans' cell histiocytosis [6, 9].

MATERIALS AND METHOD

It is a retrospective study. Data of all children aged between 4 to10 years that underwent tonsillectomy for asymmetrical tonsillar enlargement at an Indira Gandhi Govt General Hospital and Post Graduate Institute, Pondicherry during August 2011 to August 2014 was collected.

Aim of the study

This study is aimed at determining association between presence of Lymphoma and unilateral asymmetrical tonsillar enlargement in children.

Inclusion criterions

- Asymmetric tonsillar enlargement with or without cervical lymphadenitis and hepatospleenomegaly.

Exclusion criterions

- Immunosuppressive conditions such as HIV, AIDS, and Organ Transplant recipient.
- Previously diagnosed malignant condition or individual who has been treated for any malignancy.
- Any syndromic child.

A detailed history and preoperative physical examination results of all children were recorded. Demographic information such as age, gender, and race was documented. Preoperative as well as intra-operative grading of tonsillar hypertrophy was done based on Brodsky grading system as shown in table No.1.

Table1: Brodsky's grading for Tonsillar hypertrophy

Grade	Finding
0	Tonsil with in the tonsillar fossa
1	Tonsil occupying <25% of oropharynx
2	Tonsil occupying 25-50% of oropharynx
3	Tonsil occupying 50 – 75% of oropharynx
4	Tonsil occupying >75% of oropharynx

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Children who were declared fit during pre- anesthetic check-up underwent bilateral tonsillectomy with/without adenoidectomy using cold steel dissection method under general anesthesia. Intra-operatively tonsillar asymmetry was determined to be present based on Brodsky's grading system when there was at least one grade difference between right and left palatine tonsils. The dissected tonsillar specimens were labeled with proper side and sent for pathological examination. All specimens were measured for length, width, and depth. Both gross and microscopic features were recorded.

RESULTS

During our retrospective data collection from August 2011 to August 2014 a total of 57 children underwent tonsillectomy. The youngest child was 4 years old and as per our inclusion criteria the upper age limit was set at 10 years. The mean age was calculated to be 7.31 years. Of these 57 children 29 were boys and 28 were girls. The mean age for boys was 5.3 years and a median age of 5 years. Similarly, the mean age for girls was 5.9 and a median age of 5.5 years denoting no significant difference in the mean age group of both genders.

The indications for tonsillectomy surgery for the boys and girls in the asymmetric tonsillar group were similar. 15 boys and 16 girls had surgery for airway obstruction symptoms that is 54.38% of cases, 4 boys and 5 girls had surgery for a combination of airway obstructive symptoms and recurrent tonsillitis (15.78%), while only 3 girls and 4 boys had surgery for recurrent tonsillitis (12.28%). No child was found to have hepatospleenomegaly during the clinical examination. Almost 73.68% of children presented with cervical lymphadenopathy. All children underwent tonsillectomy with or without adenoidectomy.

Of the 57 children only 1 child had tonsillar hypertrophy of grade less than 3. Rest 56 children had tonsils of grade 3 and above.

On histopathological evaluation, 40.35 % cases had follicular tonsillitis. 19. 3% of cases had lymphoid hyperplasia and a similar percentage of cases had chronic non specific tonsillitis (21%). About 15.7% of cases had chronic suppurative tonsillitis. As shown in the Table No.2.

Table 2: Histopathological findings

S.No	Histopathological examination.	N=57
01	Follicular tonsillitis	23(40.35%)
02	Lymphoid hyperplasia	11(19.29%)
03	Chronic non specific tonsillitis	12(21.05%)
04	Chronic suppurative tonsillitis	09(15.78%)
05	Lymphoma	02(3.50%)

Figure 1: Tonsillar lymphoma

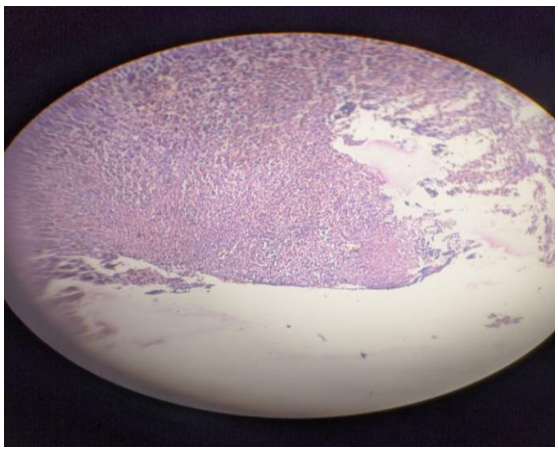

Figure 2: Tonsillar lymphoma

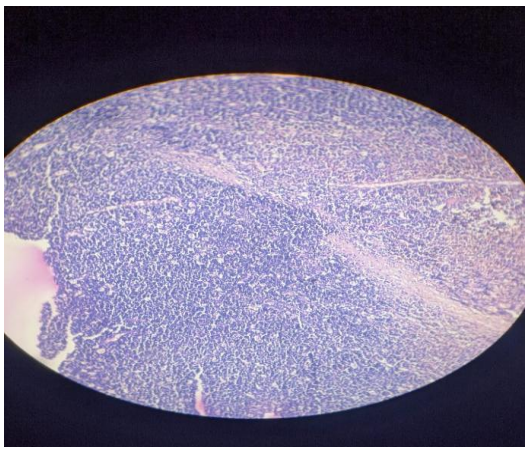

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Table 3: Variables for lymphoma prediction

Indices	No Lymphoma(n=55)	Lymphoma(n=02)
Male	27(49.09%)	02(100%)
Female	28(50.90%)	00(0%)
Cervical Lymphadenitis on clinical examination.	40(72.72%)	02(100%)
Hepatosplenomegaly on per abdominal examination.	00(0%)	00(0%)

Most importantly about 3.5% of cases were incidentally found to have Lymphoma. All lymphoma cases were male child, both the kids had cervical lymphadenopathy with no signs of hepatospleenomegaly on clinical examination as depicted in table no 3. These two cases were diagnosed to have Diffuse large B-cell Non-Hodgkin lymphoma. Fig 1 and 2 show histopathological features of lymphoma in these 2 cases. Microscopic examination revealed tonsillar tissue with intact squamous epithelial lining. The underlying lymphoid tissue shows complete effacement of the architecture by uniform sized follicles occupying almost the entire parenchyma. A well formed mantle zone is usually completely absent. The nodules are expansive, irregular and coalescent in some areas, with very little uninvolved tissue left between them. These nodules comprised an admixture of centroblast with prominent nucleoli and variable component of cleaved centrocytes. Abnormal mitotic figures and apoptotic cells may also be visible.

DISCUSSION

Non-Hodgkins lymphoma is a lymphoproliferative disorder accounting to be the third most common malignancy in children and account for 13% of all childhood cancers. The 5 year relative survival rate for pediatric non-Hodgkins's lymphoma is 91%. Those children who have been diagnosed with non-Hodgkins lymphoma at an earlier stage have a better prognosis. So localizing and identifying these lesions is at most importance to diagnose pediatric lymphoma and begin with definitive management.

A significant number of children attending ENT outpatient department presenting with odynophagia, dysphagia, neck swellings, recurrent sore throat or upper respiratory tract infection and sleep disturbances are found to have tonsillar hypertrophy. The possibility of a lymphoma remains a concern in assessing children with asymmetric tonsillar hypertrophy. Most lymphomas of the tonsils are the non-Hodgkin type. These are usually B cell in origin. Rarely, patients with tonsillar lymphoma are asymptomatic. The symptoms as previously mentioned include sore throat, dysphagia, and otalgia. Cervical lymphadenopathy is also often present and is not very different from that of chronic tonsillar hypertrophy.

In our study Tonsillar hypertrophy was found to be equally affecting boys and girls as no gender predominance was seen. But lymphoma was only identified in male children which are in concurrence with other studies stating incidence of Non-Hodgkin's lymphoma is significantly higher in males than in females [12, 13]. Ismail boujida et al in his study found that of the 101 patients with lymphoma 77% were male and 23% of cases were female [12].

In this study, we diagnosed two children who had Lymphoma on histopathological examination. These two children were at age of 5 and 7 years with asymmetrical tonsillar hypertrophy and bilateral cervical lymphadenopathy without hepatospleenomegaly. Similar findings were mentioned by Guilherme-machado de carvalho et al in his review article based on 87 published articles on tonsillar lymphoma also noticed that 20% pediatric lymphoma cases had extra nodal involvement with the most frequent site being palatine tonsil. He also found an association between asymmetry of the palatine tonsil and tonsillar lymphoma. These cases of tonsillar lymphomas also had associated cervical lymphadenopathy [13]. Our cases of tonsillar lymphoma had complaints of only recurrent throat pain and recurrent upper respiratory tract infection. Alike other cases these two cases also underwent bilateral tonsillectomy and specimen was sent for histopathological examination, after histopathological report confirming tonsillar lymphoma they were referred to department of oncology for further management. Most pediatric Non-Hodgkin's lymphomas are of high grade malignancy and frequently present with extra nodal localization which is in contrary to adult counterpart [12]. The results of our study is comparable with other studies such as Reiter et al[6] reviewed 1280 patients age 18 years and above who underwent

tonsillectomy. In 31 cases of tonsillar asymmetry, 2 cases had malignant lymphoma. Dohar and Bonilla [5] reviewed 2012 tonsillectomies and discovered only 1 case of lymphoma. In our study to 3.50% of cases (n=02) had lymphoma out of 57 patients.

There are other studies which have concluded in contrary to our study and have found no malignancy in individuals who had undergone tonsillectomy for asymmetrical tonsillar hypertrophy. For example Randall et al. (2007) [11] found an incidence of 0.011% of malignancy among 54,901 adult patients with tonsillar asymmetry.

Guilherme-machado de carvalho et al also found that the initial staging of the malignancy and the size of the tonsillar lymphoma at diagnosis was related to the survival rate of these patients, favouring the opinion of diagnostic tonsillectomy for the cases of tonsillar asymmetry [13]. Ismail boujida et al in his study also stated that tonsillar lymphomas post definitive management had a 5 year relative survival rate of 91% for children among the age group of 0 to 14 years [12].

Apart from lymphoma cases majority histopathological examinations in our study have shown features of follicular tonsillitis followed by lymphoid hyperplasia and chronic non specific tonsillitis.

CONCLUSION

We conclude that in our study the incidence of lymphoma among children with asymmetric tonsillar hypertrophy is 3.5%. Tonsillar asymmetry is more likely secondary to benign hyperplasia. However, rapid onset of unilateral asymmetrical tonsillar enlargement which is associated with fever, weight loss, cervical lymphadenopathy, and associated hepatospleenomegaly may indicate a serious underlying disorder such as lymphoma. We also conclude that children with the asymmetric tonsillar lymphadenopathy with above mentioned risk factors should undergo elective tonsillectomy to rule out lymphoma.

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