

Original Research Article

Clinicopathological study and management of infective swellings of neck in pediatric age group patients

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ABSTRACT

Background: Neck swellings are common presenting complaint in paediatric age group patients attending ENT department and are cause of concern for both doctors and parents because they are considered as red flag.

Methods: This prospective study was conducted among 102 paediatric patients of both genders attending the OPD of department of ENT, Vijayanagar institute of medical sciences, Bellary, Karnataka, between July 2018 to March 2020.

Results: Out of 102 patients in our study, majority of them were reactive lymphadenopathy 47 (46%). Out of 41 deep neck space infections, submandibular space is the most commonly involved space 27 (65.8%). Twenty-nine (70.7%) DNSI's needed institutional management hence got admitted and among them 20 (48.7%) were submandibular space infection and 7 (17%) were Ludwig's angina which was statistically significant ($p=0.001$). Among 27 submandibular space infection, 24 (88.8%) had fever, 19 (70.3%) had local pain, 4 (14.8%) had dysphagia which was statistically significant ($p<0.05$).

Conclusions: In the infective neck swellings of paediatric age group the submandibular space infection needs the zenith of active institutional management among both the genders, and the Ludwig's angina warrants its treatment on institutional admission which is frequent in this age group.

Keywords: Pediatric neck swellings, Infective neck swelling, Reactive lymphadenitis, Deep neck space infections, Management

INTRODUCTION

Neck swelling is a common presenting complaint in pediatric age group patients attending otorhinolaryngology department and are the cause of concern for both doctors and parents due to their red flag nature and easily noticed because of their eye catching location.¹⁻⁴ Pediatric neck masses have numerous diagnostic possibilities making it challenging for treating surgeon.⁵

The broad spectrum of etiology of neck swelling includes Congenital, Infective and neoplastic. Infective etiology accounts for the majority of neck swelling in pediatric age group.⁶⁻¹⁰ The severity of infective neck swelling may vary from mild reactive lymphadenopathy to life

threatening Ludwig's angina which may require immediate airway resuscitation. Majority of the time, anamnesis and physical examination is sufficient to establish the diagnosis, but when diagnosis can't be made additional FNAC and radiology of swelling are required.¹¹ Judicious use of investigations may avoid the unnecessary stress and anxiety for the treating doctor and parents.¹² Treatment of infective neck swelling can be done by conservative method and/or surgical methods.

In current study we present our prospective evaluation of infective neck swelling in paediatric age group patients that had undergone diagnosis and treatment at our department during our study period.

METHODS

Current study is a prospective clinical study conducted among 102 pediatric patients attending the outpatient department of otorhinolaryngology and head and neck surgery, VIMS, Bellary, Karnataka, India from July 2018 to March 2020 who were diagnosed and treated in our department. Patients were selected on simple random basis of both the gender that fulfilled the inclusion and exclusion criteria of this study.

Inclusion criteria

Patients of pediatric age group with infective neck swelling of both genders were included in study.

Exclusion criteria

Pediatric patients of both genders with congenital, benign and malignant neck swellings were excluded from study.

Patients were evaluated after taking consent from parents/guardian starting with detailed history and general physical examination, clinical examination of the swelling, detailed ENT and head and neck examination and provisional clinical diagnosis was established. Appropriate investigations including USG neck, FNAC of the swelling, and related investigations were done as necessitated and final diagnosis was made.

Treatment was started according to the final diagnosis. Patients with reactive lymphadenitis were treated by conservative medical management. Most of the patients with deep neck space infection were managed by incision and drainage or aspiration with appropriate antibiotics. Patients with TB lymphadenitis were put on ATT after taking opinion from the department of pulmonology and chest medicine.

Statistical analysis

Qualitative data was represented in the form of frequency and percentage. Association between qualitative variables was assessed by Chi square test with continuity correction for 2x2 tables and Fisher's exact test for all 2x2 tables where p value of chi square test was not valid due to small counts. $p < 0.05$ was considered statistically significant. Statistical analysis was done with IBM SPSS version 22 for windows.

RESULTS

Over a period of 21 months, total of 102 paediatric patients with infective neck swelling were studied.

Majority of them were in between 1-5 years and 6-10 years i.e. 41 (40%) and 39 (38%) respectively. Only 7 (7%) patients were below the age of 1 year (Figure 1). All parotid space infection (N=5) occurred among 6-10 years

of age group which was statistically significant ($p=0.03$) (Figure 2).

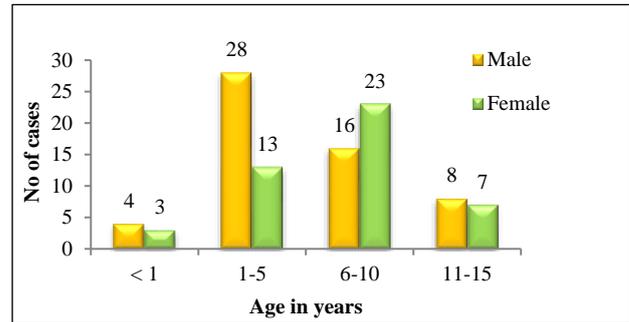


Figure 1: Age and gender distribution of infective neck swellings.

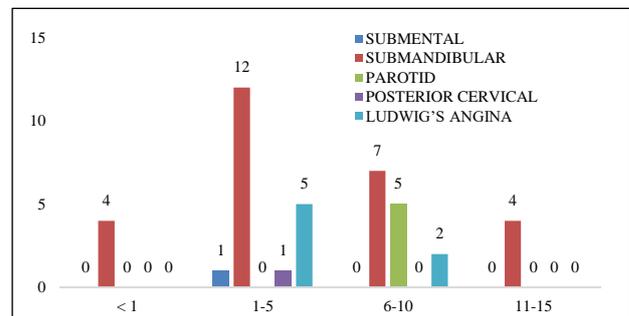


Figure 2: Distribution of deep neck space infections according to age groups.

Out of 102 patients, 56 (55%) were males and 46 (45%) were females. Thirty-one (30%) were right sided, 35 (34%) were left sided, 20 (20%) were bilateral, 16 (16%) were midline swellings. Fever, 53 (52%) was the most common presenting complaint in our study followed by local pain 48 (47%) (Figure 3). Among 27 submandibular space infection, 24 (88.8%) had fever, 19 (70.3%) had local pain, 4 (14.8%) had dysphagia which was statistically significant ($p < 0.05$) (Figure 4).

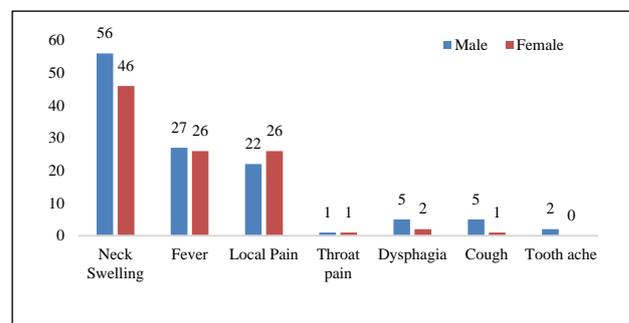


Figure 3: Symptomatology of infective neck swellings in pediatric age group.

Majority of the cases were reactive lymphadenopathy 47 (46%), followed by DNSI's 41 (40%) (Figure 5). Out of 41 DNSI's, 24 (59%) were suppurative lymphadenopathy, 7 (17%) were Ludwig's angina, 5 (12%) were

acute parotitis and 5 (12%) were submandibular sialadenitis. Submandibular space is the most commonly involved space 27 (65.8%) among DNSI (Figure 6).

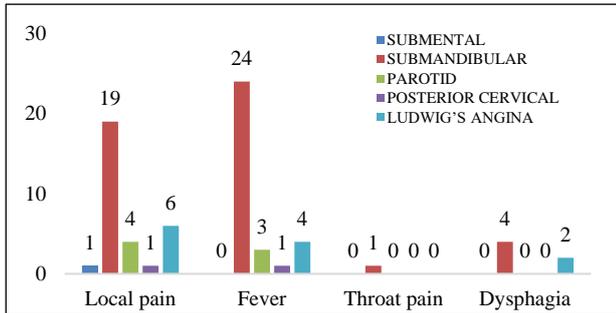


Figure 4: Symptomatology of deep neck space infections in paediatric age group.

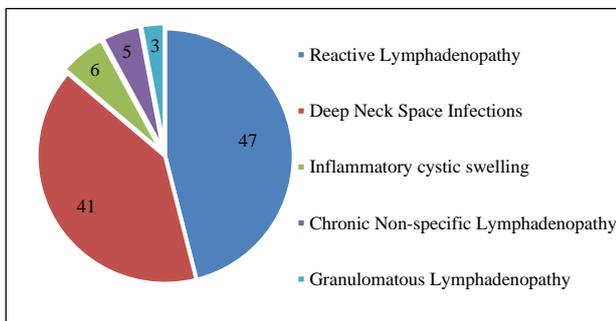


Figure 5: Distribution of infective neck swellings according to final diagnosis.

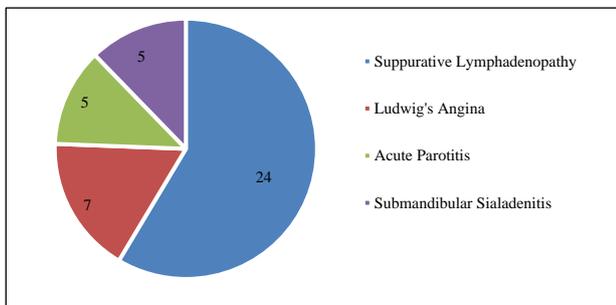


Figure 6: Distribution of deep neck space infections according to final diagnosis.

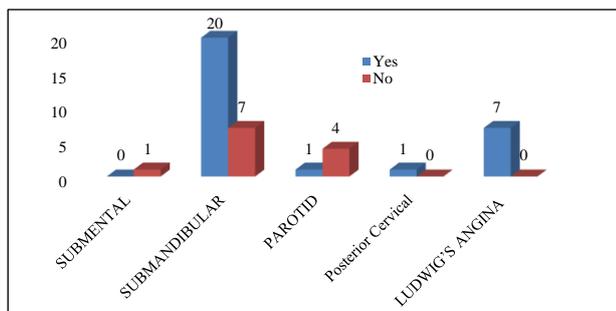


Figure 7: Institutional management among deep neck space infections.

Out of 41 DNSI's, 29 (71%) needed institutional management hence got admitted and among them 20 (48.7%) were submandibular space infection and 7 (17%) were Ludwig's angina which was statistically significant ($p=0.001$) (Figure 7).

Intervention

All the cases of reactive lymphadenopathy were managed conservatively. Out of 24 suppurative lymphadenopathy patients, 12 patients needed incision and drainage, 10 patients needed aspiration and 2 were managed conservatively. Among 7 cases of Ludwig's angina, 3 cases needed incision and drainage and 4 were managed conservatively. All cases of acute parotitis and submandibular sialadenitis (N=5) were managed conservatively (Figure 8). Among 6 infective cystic swellings, 2 cases needed incision and drainage, 1 needed aspiration, 3 were managed medically. All the cases of chronic nonspecific lymphadenopathy (N=5) were managed conservatively. All the cases of granulomatous lymphadenopathy (N=3) were given anti-tubercular treatment (ATT) after taking opinion from the department of pulmonology and chest medicine.

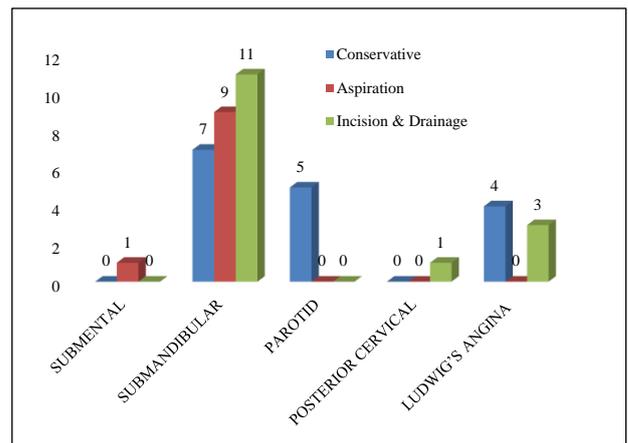


Figure 8: Modality of treatment among deep neck space infections in paediatric age group.

DISCUSSION

There are innumerable studies about paediatric neck masses in literature but studies exclusively about infective origin are meagre even though they constitute major chunk of paediatric neck masses. Hence, this study emphasizes on the clinicopathological aspects and management of it in paediatric patients.

Age group of the patient has no statistical significance with respect to neck swelling except parotid space infection ($p=0.03$), which were more common between 6-10 years of age in current study.

In current study, fever (52%) is the most common associated presenting complaint. Similar findings were

noted in the studies done by Gangwar et al, Motiwala et al and Ayugi et al among pediatric neck masses.¹³⁻¹⁵

Studies among paediatric neck masses done by Showkat et al, Govari et al, Deeva et al, Cannolly et al and Gangwar et al found that reactive lymphadenopathy is the most common infective neck swelling.^{2,13,16-18} Similar findings noted in current study 46% (N=47) are reactive lymphadenitis cases.

In our study the symptomatology of fever, local pain and dysphagia ($p < 0.05$), need for institutional management ($p = 0.001$) with respect to deep neck space infection is statistically significant when associated with submandibular space. Similar to the study carried by Gangwar et al who found the submandibular space to be involved commonly.¹³

One case of submandibular space infection had spread of infection to parapharyngeal and retropharyngeal space which was managed surgically. In current study the lateral or midline infective neck swellings on treatment, improved clinically irrespective of the modality ($p < 0.02$) (Table 1).

Table 1: Modality of treatment with respect to site of infective neck swellings in paediatric patients.

Treatment	Swelling				
	Right	Left	Bi-lateral	Mid line	Total
Conservative	16	26	20	12	74
Aspiration	6	4	0	1	11
Incision & drainage	9	5	0	3	17
Total	31	35	20	16	102

Chi square test $p < 0.02$, (significant)

Current study has zero mortality with average hospital stay of 7 days among 33 admitted infective neck swelling cases.

CONCLUSION

In the infective neck swellings of paediatric age group the submandibular space infection needs the zenith of active institutional management among both the genders, and the Ludwig's angina warrants its treatment on institutional admission which is frequent in this age group.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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