



Clinical Presentation of Neck Space Abscess and its Management in a Rural Based Tertiary Care Centre

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Abstract

Objective: The aim of this study is to evaluate patients of neck abscess in respect to its common presentation, predisposing factors, co-morbidity, frequently involved area and treatment modality needed.

Study Design: It's a prospective study done between January 2016 to December 2017 at Burdwan Medical College and Hospital, Burdwan.

Materials and Method: 46 patients with clinical diagnosis of neck abscess are included in our study during January 2016 to December 2017. Details of all patients are recorded and all of them are assessed for demographic profile, clinical presentation, presence of any co-morbidity, probable source of infection, abscess location, treatment procedures during hospital stay.

Result: among 46 patients 22 were male and rest 24 were female, mean age of our sample is 22.98 with SD 15.414. Patients mostly complain about neck pain (76%) and swallowing difficulty (67%). 8.7% patients have diabetes mellitus as co-morbidity. The source of infection is unknown in most of the cases, but dental caries and oro-pharyngeal infection (28.3% each) were found as source of infection in a significant number of patients. Abscess formation was found mostly in submandibular space (28.3%) followed by parapharyngeal space (26.1%). 80% patients needed incision and drainage along with iv antibiotics whether 20% patients responded well to conservative treatment. One patient with compromised upper airway, underwent tracheostomy as a life saving procedure.

Conclusion: Patients of all age group may be presented with neck space infection. Patients with co-morbidities present with more severe form of neck space infection. In many cases of neck space infection, source of infection may present in nearby areas. As patient with neck space infection can progress to life threatening conditions, prompt medical as well as surgical treatment is very important.

Introduction

Neck abscess is collection of pus following infection of potential spaces and fascial planes of neck¹. It is subdivided into superficial soft tissue neck abscess, retropharyngeal space abscess, parapharyngeal space abscess, submandibular space abscess or Ludwig's angina.² Children below 4 years and immuno-compromised patients

are more susceptible.² Early diagnosis and treatment reduces the morbidity and mortality rates than pre-antibiotic era¹. In children where clinical symptoms and signs are very similar to other disease, diagnosis of neck abscess may be delayed³. Late diagnosis may be responsible for various serious complications such as upper airway obstruction, mediastinitis, jugular vein

thrombosis, cervical necrotizing fasciitis, empyema etc³. Numerous portal of entry for infection and proximity to vital structures make this issue important⁴. Risk factors like foreign body ingestion, dental caries, IV drug addiction and history of trauma should be searched for³. The aim of this study is to evaluate patients of neck abscess in respect to its common presentation, predisposing factors, co-morbidity, frequently involved site and treatment modality needed.

Materials and Methods

46 patients with clinical diagnosis of neck abscess are included in our study consecutively during January 2016 to December 2017 at Burdwan Medical College, Burdwan. After taking informed consent, details of all patients are recorded (demographic profile, clinical presentation, any co-morbidity, probable source of infection, abscess location, treatment procedures and complications during hospital stay).

Results and Discussion

In our study, among 46 patients 22 were male and 24 were female.

Table 1 Sex distribution of 46 patients with neck space infection

Sex	Number of patients	Percentage(%)
Male	22	48
Female	24	52

S. J. Motahari et al⁵ studied 815 cases with deep neck infection. Numbers of male and female patients were 485 and 330. Male predominance among the patient population also seen in the study done by Sethi et al.⁶ In our study number of female patients are predominant. This disparity in results may be due to different population of patients under study or small sample size of our study may be responsible.

Most of the patients were children and young adults. The youngest patient is 4month old and the oldest is 75 year old. The mean age of our study population is 22.98 with standard deviation of 15.414. Result of our study corresponds to the studies done by TP Brito³ et al. and Eftekharian et al⁷. In study done by TP Brito the mean age of the patient population was 28.1 and there were higher incidence of neck space infection in young male patients³. There are also some studies showing that the incidence of neck space infection is more at 3rd and 4th decade⁸. Deficient immunity in older people and various co-morbidities may be the reason in this case.

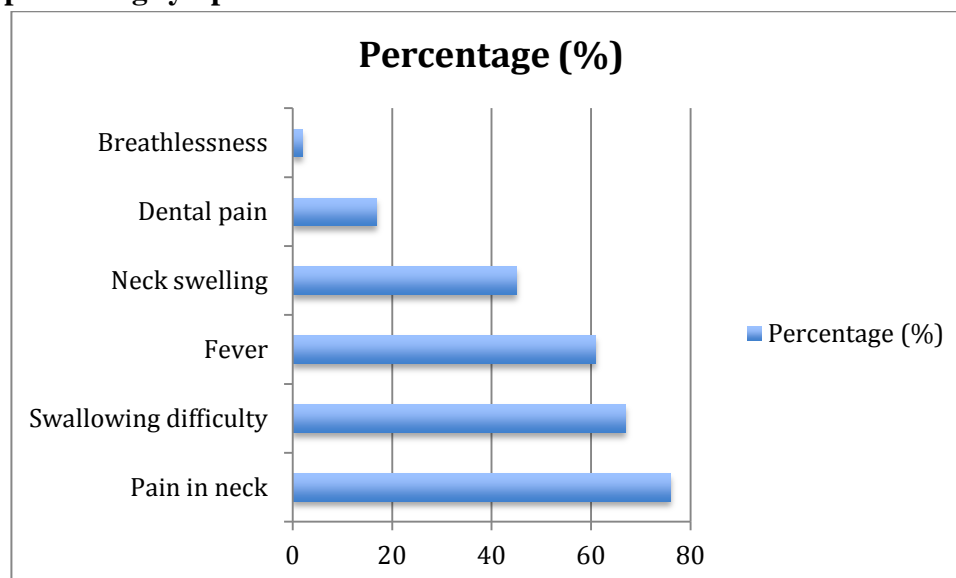
Table2. Age distribution of 46 patients with neck space infection

Age group in years	Number of patients	Percentage (%)	MEAN=22.98 SD=15.414
0-10	09		
11-20	15		
21-30	10		
31-40	06		
41-50	02		
51-60	02		
61-70	02		
>70	00		

Neck pain was the most common presenting symptom (76%) where as swallowing difficulty was the second most common presenting symptom (67%).

Table-3 Presenting symptoms and their distribution

Symptoms	Number of cases with such symptom	Percentage (%)
Pain in neck	35	76
Swallowing difficulty	31	67
Fever	28	61
Neck swelling	21	45
Dental pain	08	17
Breathlessness	01	2

Distribution of presenting symptoms

Neck pain is the most common presenting symptom followed by neck swelling, swallowing difficulty and trismus in patients with neck space infection as described in other studies like Bakir et al.⁹ and Sethi et al.⁶

Among the all patients, four (8.7%) were diabetic. According to Atishkumar BG et al.¹⁰ 36.30% patients had diabetes mellitus as comorbidity in their study on deep neck space infection - A retrospective study of 270 cases at tertiary care center. This difference may be due to different population of patients under study.

In most of the cases (~1/3rd), the source of infection was unknown. Dental caries as well as oro-pharyngeal infection are other common probable source of infection (28.3% each). In four cases (8.7%) of retropharyngeal abscess, there were impacted foreign body (3 cases-fish bone, 1 case-small chicken bone) in hypopharynx.

Table 4 Probable source of infection

Probable source of infection	Number of patients	Percentage (%)
Not defined / unknown	16	34.7
Caries tooth	13	28.3
Oro-pharyngeal infection	13	28.3
Foreign body impaction	4	8.7

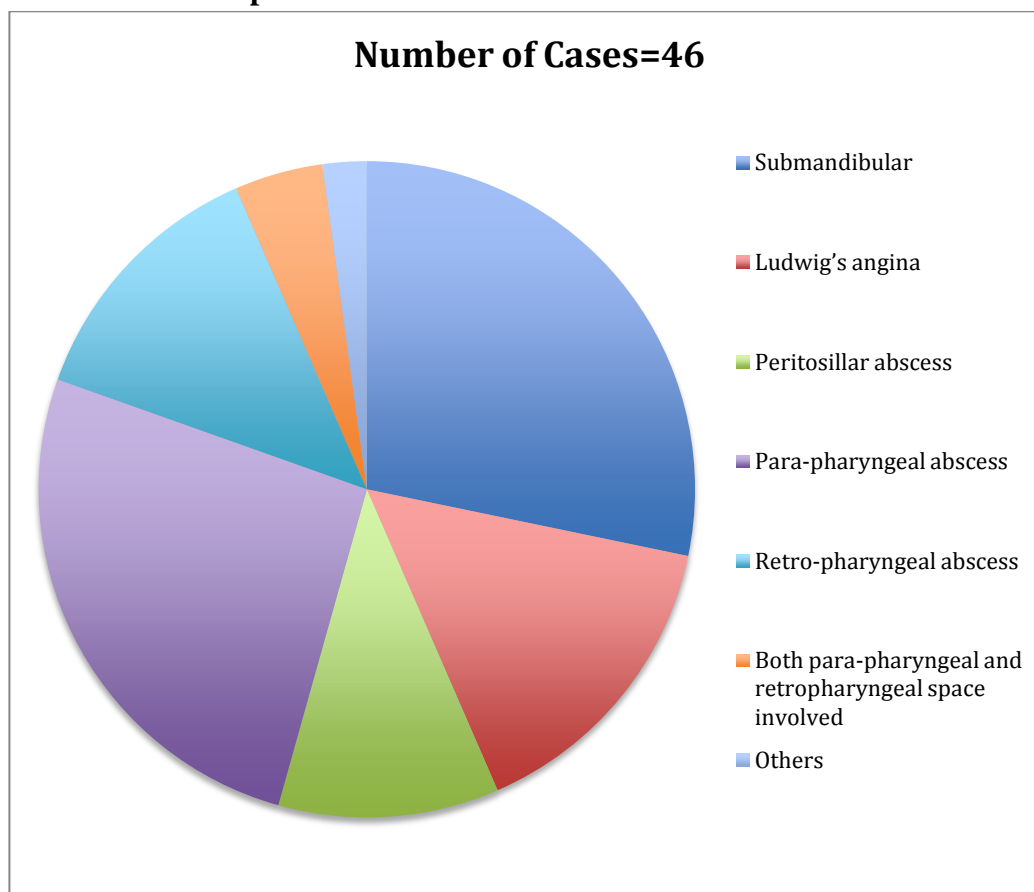
Result of our study consistent with the result of other studies where the source of infection is unknown up to 50% of cases in patients having neck space abscess^{11,12}. According to Coelho et al.¹³ and Sennes et al.¹⁴ Dental caries is responsible as source of infection in 37-40% cases whereas tonsillopharyngeal infections account for 17.5-20% cases.

Among the spaces, submandibular space abscess was found mostly (28.3%) in our study, followed by para-pharyngeal space abscess (26.1%) and Ludwig's angina (15.2%). Six patients had retropharyngeal space involvement and five had peritonsillar abscess. Two diabetic adults (4.3%) have multi-space involvement; pus collection was seen in both para-pharyngeal and retropharyngeal space. A 4½ year old girl presented with anterior neck abscess, pus collection was found in right para-tracheal area on neck ultrasound.

Table 5 Distribution of involved neck space

Spaces	Number of Cases	Percentage (%)
Submandibular	13	28.3
Ludwig's angina	7	15.2
Peritonsillar abscess	5	10.9
Para-pharyngeal abscess	12	26.1
Retro-pharyngeal abscess	6	13
Both para-pharyngeal and retropharyngeal space involved	2	4.3
Others	1	2

Distribution of involved neck space



In their study Atishkumar BG et al.¹⁰ found that patients present most commonly with Ludwig's angina followed by submandibular space infection and peritonsillar abscess. M. Panduranga Kamath et al.⁴ showed that para-pharyngeal space was involved mostly. In our study submandibular space infection is seen mostly. Due to close vicinity, infection from dental caries (2nd and 3rd mandibular molars) can cause submandibular space infection. Ludwig's angina, submandibular space infection and peritonsillar abscess are mostly due to odontogenic in origin¹⁰.

All patients were admitted in ENT indoor and received intra-venous (iv) antibiotics (injection Ceftriaxone/ injection Amoxyclav along with infusion Metronidazole). Later on antibiotics are changed in favour of culture and sensitivity report of pus drained. All patients were advised for neck ultrasound and X-ray soft tissue neck lateral view. CECT done for patients suspected to have involvement of para-pharyngeal and retropharyngeal space or multi space abscess.

37(~80%) patients needed incision and drainage along with iv antibiotics whether 9(~20%) patients responded well to conservative treatment (iv antibiotics).

Percentage of open surgical drainage in our study is well comparable to other studies like Mumtaz et al.¹⁵ Eftekharian et al.⁷ and Har-El et al.¹⁶ where surgical procedures were done in 78%, 79% and 90% respectively.

A 6-year old boy (2%) with Ludwig's angina developed compromised upper airway, and underwent emergency tracheostomy with placement of cuffed tracheostomy tube of 5.5 mm internal diameter. Considering existence of tongue fallback and airway edema; tracheostomy is preferred over endotracheal intubation. Tracheostomy were needed in 0.74% of cases in study of Atishkumar BG et al.¹⁰

Conclusion

Though children and young adults are most commonly affected, patients of any age group

may be presented with neck space infection. Patients with co-morbidities present with more severe form of neck space infection, sometimes multi-space involvement is there. In many cases of neck space infection, source of infection may present in nearby areas. As patient with neck space infection can progress to life threatening conditions, prompt medical as well as surgical treatment is very important. Remembering the sample size is small, a multi-center based standardized study with large number of patients should be included to show more accurate assessment.

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