

Management of Marbus Strangulatorius in a 3 year old child

Dr. Gokkulakrishnan
Professor,
Department of OMFS

Dr. Mousumi Singh
Professor & HOD
Department of Pedodontics

Dr. Manpreet Singh
Senior Lecturer
Department of OMFS

Dr. Anmol Agarwal
JR III
Department of OMFS

Dr. Ashish Shahi
JR II
Department of OMFS

Kothiwal Dental College & Research Centre, Moradabad

Abstract

Angina malignae, Garotillo and Marbus Strangulatorius are other terminologies used to describe Ludwigs angina. Ludwigs angina is a potentially life threatening, rapidly expanding, massive firm brawny cellulitis and acute toxic stage involving simultaneously the submandibular and sublingual spaces bilaterally and the submental space. Very rarely this condition affects the children & when affected the sequale is of severe nature where it causes airway compromise & at times resulting in death. We report a rare case of ludwigs angina affecting a 3 year old child where in the infection was more pronounced on the contralateral side of the infected tooth.

Key Words : Angina malignae, Brawny cellulitis, Garotillo, Life threatening, Ludwigs angina, Marbus Strangulatorius

Introduction

The original description of the disease was given by Wilhelm Friedrich von Ludwig in 1836⁶. The condition is odontogenic in 90% of cases and arises from second and third mandibular molars in 75% of case. It is a rapidly spreading cellulitis, usually originating in the region of submandibular space but never involves one single space and arises from extension by continuity and not by lymphatics and produces gangrene with serosanguinous, putrid infiltration but very little or no frank pus^{8,9}. This condition is notorious for its aggressiveness, rapid progression to airway compromise & high mortality when not treated promptly^{4,5,7}.

Case Report

A 3 year old boy was brought to the Emergency department, Kothiwal dental college and research centre, Moradabad, by his parents with chief complaint of swelling in lower jaw for the last 3 days, inability to swallow, pain and fever. History revealed that the patient was apparently asymptomatic 3 days back when swelling suddenly started on the right side of face (submandibular region). The patient was rushed to a general practitioner who applied some topical medicine. The swelling was progressively increasing and was associated with trismus, pain and pyrexia (FIG 1). The parents also complained of change in voice and the child felt uncomfortable and preferred to keep his mouth open. His temperature was elevated,

and there was an increase in his respiratory rate and heart rate. Extra orally on inspection bilateral swelling of submandibular (more pronounced on the right side) sublingual and submental space was seen. Mouth opening was reduced and on palpation the swelling was firm in consistency with marked tenderness, on the bilateral submandibular and submental region. Intra orally there was a Carious tooth in relation to left mandibular first primary molar and the floor of mouth was raised. OPG revealed carious first primary molar present on the mandibular left arch (FIG 2) and blood picture showed an increased ESR and WBC count. A clinical diagnosis of Ludwig's angina was made, and intravenous antibiotics in the form of amoxicillin and clavulanic acid and metronidazole, in appropriate dose was started. Extraction of left decayed lower first molar was done followed by incision and drainage on the same day under sedation with inj. Ketamine, by placing 2 stab incisions, one in the right submandibular region and one in the submental region (FIG 3), a third stab incision was made intraorally in the right sublingual space region (FIG 4). Blunt dissection was done and a rubber drain was sutured in site. Drainage produced small amount of serosanguinous material. Improvement was obvious within the 24 hr of the surgical treatment. The boy was discharged after 2 days of treatment (FIG 5) with intravenous antibiotics for an additional 3 - days. The drain was removed 48 hrs after the surgery without any need for change. A band and loop space maintainer was given after 15 days.

Discussion

Ludwigs angina was first described by Wilhelm Friedrich Von Ludwig in 1836. Term ludwig's angina was coined by Camerer in 1837. It is also called as, Marbus Strangulatorius, Angina malignae, and Garotillo. Ludwig's angina is a firm, acute, toxic cellulitis of the submandibular and sublingual spaces bilaterally and of the submental space. Three 'fs' of Ludwig's Angina, feared, fatal (often), fluctuant (rarely). Usually it affects people within 20 60 yrs, although an age range of 12 days to 84 years have been reported⁸. Very rarely this condition affects the children & when affected the sequel is of severe nature where it causes serious airway compromise even

resulting in frequent death. Condition is of cellulitis which spreads in presence of organisms that produce significant amounts of hyaluronidase and fibrinolysins. The bacterial isolates vary and are often mixed. Alpha-hemolytic streptococci, staphylococci and bacteroides are commonly reported. Other anaerobes such as peptostreptococci, peptococci, Fusobacterium nucleatum, Veillonella species and spirochetes are also seen. Gram-negative organisms such as Neisseria catarrhalis, Escherichia coli, Pseudomonas aeruginosa and Haemophilus influenzae have also been reported². The signs and symptoms of Ludwig's angina are the result of a rapidly expanding cellulitis. Usually the infection starts from submandibular space then through tail of submandibular space, it spreads to sub lingual space on the same side. From here the infection spreads either to sub mental space or to opposite sublingual space through the substance of the tongue, then from here to submandibular space on that side. Infection can also spread from the submandibular space to the submental space. Moreover direct communication exists between sublingual and submental spaces. However in children, the infection from a mandibular deciduous first molar spreads to sublingual space. In our case the source of infection was the left lower primary first molar, so the infectious process could have spread to left sublingual space and from there to opposite sublingual space or submental space from where it could have spread to right submandibular space. This can only be the possible explanation for the cellulitis to be more pronounced on the right side as compared to the left side. Severe pain and neck swelling occur in virtually all patients, foul odour usually indicates the presence of an anaerobe. Ludwig's angina is a dramatic, life-threatening, soft tissue infection of the floor of the mouth and neck. The presence of stridor, dyspnea, decreased air movement or cyanosis requires prompt attention because it may indicate an impending airway crisis. A child may sit leaning forward to maximize the airway, which was seen in our case also. If vigilant for its clinical presentation and aware of its potential for rapid compromise of the patient's airway, clinicians can intervene early in order to prevent its most dire consequences. In addition to airway

compromise other reported complications of ludwigs angina include : carotid sheath infection, arterial rupture, thrombophelbitis of IJV, mediastinitis, empyema, pericardial & or pleural effusion, osteomyelitis of mandible, sub phrenic abscess and aspiration pneumonia^{1,3}. Airway control is of paramount importance, and attention to this consideration, combined with antibiotic therapy, surgical drainage, and modern intensive care, have all contributed to a declining mortality. Surgical drainage has two Aims Removal of the cause and surgical decompression. Advantages of surgical drainage are; Reduces pressure of edematous tissues on airways, prompt drainage, allows obtaining specimen and allows placement of drains. In our case also early diagnosis and timely intervention had averted many life threatening complications.

Conclusion

Ludwigs angina is caused by rapidly spreading cellulitis of the floor of the mouth and is characterized by a brawny induration

of the floor and supra hyoid region with an elevation of the tongue potentially obstructing the airway. In the pre antibiotic era, ludwigs angina was frequently fatal, with 50% mortality, however antibiotics and aggressive surgical intervention have significantly reduced the mortality to less than 5%. Airway control and prevention of airway compromise will assure greatest hope for speedy and an uncomplicated recovery from this dreaded condition. In our case early diagnosis and intervention with aggressive antibiotics with surgical decompression averted many life threatening complications of this dreaded disease in a small child of 3 years.

References

1. Barakate MS, Jensen MJ, Hemli JM, Graham AR. Ludwig's angina: report of a case and review of management
2. David M. Lemonick, MD, Ludwig's Angina: Diagnosis and Treatment: Hospital Physician July 2002, 31-37.
3. Ferrera PC, Busino LJ, Snyder HS. Uncommon complications of odontogenic infections. Am J Emerg Med 1996;14:31722. issues. Ann Otol Rhinol Laryngol 2001;110(5 Pt 1): 4536.

4. Kurien M, Mathew J, Job A, Zachariah N. Ludwig's angina. Clin Otolaryngol 1997;22:2635.
5. Marple BF. Ludwig angina: a review of current airway management. Arch Otolaryngol Head Neck Surg 1999; 125:5969.
6. Murphy SC. The person behind the eponym: Wilhelm Frederick von Ludwig (1790-1865). J Oral Pathol Med 1996;25:5135.
7. Neff SP, Merry AF, Anderson B. Airway management in Ludwig's angina. Anaesth Intensive Care 1999;27: 65961.
8. Nguyen VD, Potter JL, Hersh-Schick MR. Ludwig angina an uncommon and potentially lethal neck infection. AJNR, Am J Neuroradiol 1992;13:215-9.
9. Weiss L, Finkelstein JA, Storrow AB. Fever and neck pain Weiss L, Finkelstein JA, Storrow AB. Fever and neck pain. Ludwig's angina. Acad Emerg Med 1995;2:835,8434

Legends

- Fig.1 Marked submandibular and submental swelling
- Fig.2 OPG showing decayed left mandibular primary first molar
- Fig.3 Drains placed in the right submandibular and the submental space after extraction of tooth 74.
- Fig.4 IND in the sublingual space
- Fig.5 48 hrs Post OP



Fig. 1

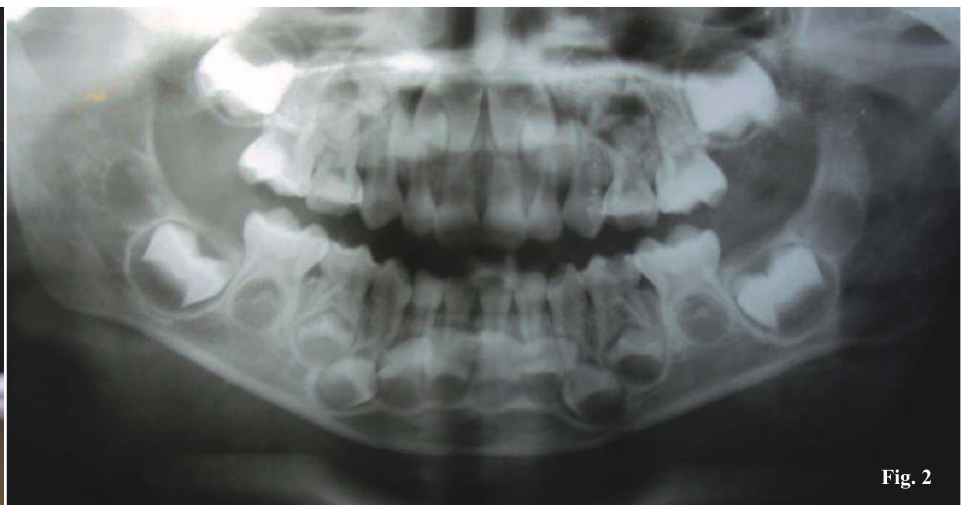


Fig. 2



Fig. 3

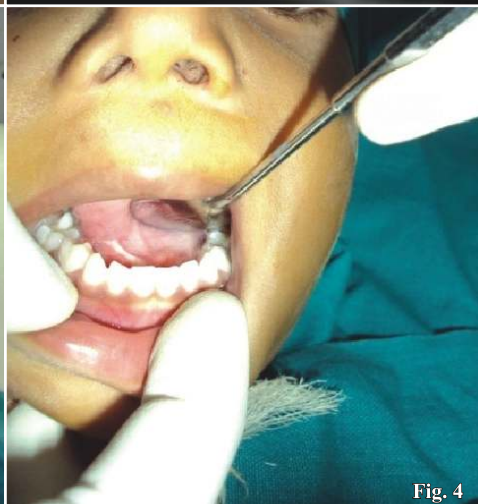


Fig. 4



Fig. 5