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Case Report

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Characteristic thumb sign in epiglottitis

*B.N.Chander[*1], T. Satish Chandra[2], M. Kavya[3], K.K. Sravanthi[4]*

1 *Professor and HOD; Department of Radio diagnosis, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnaavutapalli-521101, India*

2 *Associate professor, Department of ENT, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnaavutapalli-521101, India*

3 *Postgraduate; Department of Radio diagnosis, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnaavutapalli-521101, India*

4 *Postgraduate, Department of ENT, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnaavutapalli-521101, India*

Abstract

Thumb sign is detected in simple lateral neck radiograph (preferably in upright view with neck in extension). Diagnosis can be confirmed by direct examination of pharynx, which reveal swollen epiglottis and can be confirmed by direct naso-pharyngo-laryngoscope. However this should be performed in an operating room where facilities to secure air way are available. Diagnostic investigations like CT can reveal other findings like thickening of epiglottis, thickening of ari-epiglottic fold and prevertebral fascia. Suspicion of an abscess may be deduced from evidence of multiloculated density collections in the neck.

Keywords: Acute Epiglottitis, Thumb sign, Epiglottitis.

Introduction

In acute epiglottitis, the epiglottis becomes swollen and enlarged revealing a classical "thumb sign" also known as thumb print sign. Characteristically the epiglottis should be greater than 8mm in adults to call it as acute epiglottitis. It can occur in various other disorders like granulomatous diseases (eg: sarcoidosis, TB & Wegener granulomatosis), angioneurotic edema and tumors like epiglottic cyst and lymphoma. It may cause thinning of air column (or) air column may not be seen, since edema of epiglottis and adjacent tissues can cause epiglottis to expand there by obliterating the vallecula. Loss of vallecula has been said to be another specific sign of epiglottitis. Epiglottis can cause life threatening air way obstruction [1]. A simple lateral neck radiograph may be adequate. However, CT may help in evaluation of complications, as well as exclusion of other complications like peri tonsillar abscess, deep neck space abscess and an encysted foreign body, however, CT should be approached with caution as supine position may worsen acute respiratory distress.

Case Report

A 27 years old lady presented to ENT department with severe odynophagia and high grade fever for 3 days. The results of Oropharyngeal examination revealed drooling of saliva and edematous congested tip of epiglottis. Before going for further endoscopic evaluation, a lateral radiograph of neck was taken and it showed enlarged and edematous epiglottis – characteristic thumb sign was noted and CT neck confirmed the findings. The above findings suggested a diagnosis of Acute Infectious Epiglottitis (Figure 1-4). Video laryngoscope confirmed that the epiglottis was swollen and inflammed. (Intravenous antibiotics were administered. In view of the substantial risk air way compromise, this patient was admitted intensive care unit for observation).

Discussion

In early 1940^{s} inflammation of epiglottis was considered in adults with a mortality rate as high as 50% [2]. In 1950s the disease was recognized in paediatric population also. The common signs and symptoms of adults in epiglottitis were decrease in frequency and increase in severity of sore throat, dysphagia, drooling and stridor. Incidentally death of Mr. George Washington, the President of America was reported due to epiglottitis.

Diagnosing epiglottitis involves both clinical and radiological features. Classical in lateral radiograph findings are thickened aryepiglottic fold and obliteration of vallecula besides the classical thumb sign.

***Corresponding author:**
Dr. B.N.Chander
Professor and HOD, Department of Radio diagnosis, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnaavutapalli-521101, India

Laryngoscope is most sensitive and may reveal swollen, inflammed, horse shoe shaped epiglottis. Misdiagnosis of epiglottitis can be attributed due to lack of specific parameters hence, following additional parameters for diagnosing epiglottitis has been proposed [1,2].

- Epiglottic height to width ratio >0.6
- Epiglottic to C4 vertebral body width ratio >0.33
- Aryepiglottic fold to C3 vertebral body width ratio >0.35
- Prevertebral soft tissue to C4 vertebral body width ratio >0.25
- Hypopharyngeal airway to C4 vertebral body width ratio >1.5

Thumb Sign is also reported in Marfan's Syndrome, where thumb inside the clenched hand protrudes outside the hand.

Figure 1: Plain CT (Sagittal image) showing characteristic "Thumb sign"

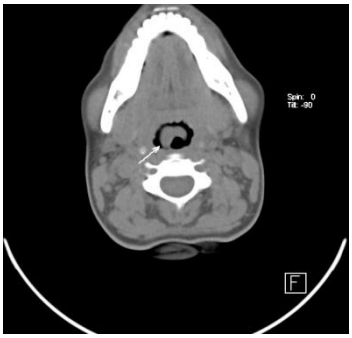

Figure 2: Plain CT axial view- Arrow showing swollen Epiglottis

Figure 3: Plain Radiograph (neck lateral) showing Characteristic "Thumb sign" in Epiglottitis

Figure 4: Laryngoscopic Findings

Conclusion

Thumb sign can be characteristically demonstrated in plain lateral neck radiograph. However CT neck images can be useful in detecting the complications like peritonsillar abscess, neck space abscess and foreign body. Acute epiglottitis is a medical emergency which requires immediate attention because of its potential for laryngeal spasm and loss of airway. This requires early diagnosis and rapid intervention in order to avoid life threatening complication.

Conflict of Interest: No conflict of interest noted. No financial implication.

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