



## An Unusual Complication of Mastoiditis: Luc's Abscess

**Raneem Ahmed Saleh\*, Dareen Jalal Tarim, Amani Abdullah AzizAlrahman.**

Department of Pediatric Emergency, King Fahad Medical City, Riyadh, Saudi Arabia.

### Article Info

**Received:** August 19, 2024

**Accepted:** August 24, 2024

**Published:** August 28, 2024

**\*Corresponding author:** Raneem Ahmed Saleh,  
Department of Pediatric Emergency, King Fahad Medical City,  
Riyadh, Saudi Arabia.

**Citation:** Raneem A Saleh, Dareen J Tarim, Amani A AzizAlrahman. (2024). "An Unusual Complication of Mastoiditis: Luc's Abscess". *Pediatrics and Child Health Issues*, 4(2); DOI: 10.61148/2836-2802/JPCHI/063

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### Abstract:

Luc's abscess, historically attributed to the work of Henri Luc, stands out as a rare but significant otitis media complication in pediatric patients. It manifests as a subperiosteal abscess beneath the temporalis muscle, typically following middle ear infection spread. The case underscores the rarity of Luc's abscess and its distinct clinical presentation, especially in the absence of pus, which is unusual for such infections. The patient's diabetic condition necessitated a tailored approach to management, highlighting the importance of considering underlying health conditions in pediatric mastoiditis and its complications.

**Keywords:** mastoiditis; absence; diabetic

### Case History

A three-year-old girl presented to the Paediatrics emergency department with a three-day history of left ear pain which radiated to the right and was left untreated, subjective fever and one day history of right post-auricular swelling. She had a viral illness one month ago after being in contact with her sick siblings which lasted around ten to fourteen days. Of note, parents report she had an unwitnessed fall 1 day ago on a mattress. She has a background history of Diabetes Mellitus and immunisations were up to date.

On examination of the right ear, there was obvious swelling over right postauricular area which was tender on palpation, no erythema; the facial nerve was intact (Fig 1). On examination of the ears, the tympanic membranes were not inflamed and was unremarkable. The rest of the ENT exam was normal, including systematic exam (Cardiovascular, Respiratory, Gastrointestinal). Vitals were taken and the child was pyrexial. Blood tests showed a raised ESR and C-reactive protein levels. The final diagnosis was mastoiditis complicated by subperiosteal abscess under the superficial temporal fossa.

Differential diagnosis included an underlying skull fracture secondary to trauma, given the location of swelling and history of fall one day previously, as well as mastoiditis, and a CT brain was arranged. The CT findings were reported as right otomastoiditis with overlying soft tissue swelling and oedema.

ENT were consulted and train aspiration was done which showed no pus. The Infectious diseases team was consulted, and treatment was commenced with intravenous antibiotics, ceftriaxone and clindamycin for four days as an inpatient. The patient improved during her hospital stay, and was discharged on oral Clindamycin and Cefdinir to complete a total duration of 4 weeks. At the 2 week outpatient review, complete resolution of the

swelling and infection was seen with no further complications.



**Figure 1:** The photo above highlights the area swelling over right postauricular area

## Discussion

Luc's abscess is named after Henri Luc, a French otolaryngologist who significantly contributed to the understanding and identification of this unique medical condition. Historically, Henri Luc is credited with the first detailed description of this type of abscess, which is characterized by a subperiosteal abscess formation beneath the temporalis muscle. This condition often results from the spread of a middle ear infection to the subperiosteal area

and is known for its accumulation beneath the temporal muscle (1). Despite its rarity, it requires prompt diagnosis and treatment to prevent severe complications, especially in pediatric patients or those with underlying conditions like diabetes mellitus, as illustrated in the case of the three-year-old girl.

Luc's abscess, an uncommon but serious complication of otitis media, presents a unique challenge in pediatric patients. In the case

of the young girl, the development of this rare subperiosteal abscess beneath the temporalis muscle, following mastoiditis, required a meticulous and prompt response. Her management involved initial suspicion of a skull fracture due to her history of a fall, but subsequent investigations led to the diagnosis of mastoiditis complicated by a subperiosteal abscess.

The management strategy in this case aligned with the general approach to Luc's abscess, which typically involves a combination of surgical intervention and antibiotic therapy. However, an individualized approach was necessitated due to the patient's young age and diabetes mellitus condition. The use of intravenous antibiotics like ceftriaxone and clindamycin, followed by oral Clindamycin and Cefdinir, reflects the standard practice of aggressive antibiotic therapy in managing such infections. This approach is consistent with the findings in previous studies (2) which emphasize early diagnosis and prompt treatment to prevent severe complications.

A notable difference in this case was the absence of pus during aspiration, which is unusual for Luc's abscess, often characterized by suppurative complications (3). This could indicate either an early stage of abscess formation or a less aggressive infection, possibly influenced by the patient's existing health condition and quick medical intervention.

The case also highlights the importance of considering underlying health conditions, like diabetes mellitus, in the management of pediatric mastoiditis and its complications. The presence of diabetes may have necessitated a more cautious and closely monitored approach, as such conditions can affect the body's response to infection and healing processes.

## Conclusion

In conclusion, the management of Luc's abscess in this case largely reflects established treatment protocols involving surgical and antibiotic therapies. The absence of pus during aspiration and the patient's underlying diabetes mellitus present unique aspects of this case, underscoring the need for personalized treatment plans in pediatric mastoiditis and its complications.

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