CLINICAL CASE

# THERAPEUTIC PARTICULARITIES OF CHRONIC SUPPURATED CHOLESTEATOMATOUS OTOMASTOIDITIS

**C. Stan[1], Andreea Mihaela Enachi [1], Doina Vesa[1,2]**
[1]The Faculty of Medicine and Pharmacy, "Dunărea de Jos" University of Galaţi, Romania
[2]The ENT Unit, Emergency County Hospital "Sf. Apostol Andrei" of Galaţi, Romania

Corresponding author: Constantin Stan
Phone no. 0040744698414
E-mail: stan.constantin90@yahoo.com

## Abstract

*Chronic suppurated otomastoiditis is a chronic inflammatory damage of the middle ear and mastoid process that exceeds 12 weeks and which leads to the permanent perforation of the eardrum's membrane. There is local damage such as osteitis, osteonecrosis and cholesteatoma, while a general view reveals an asymptomatic evolution, with a good general state, otorrhea being the only local symptom. This paper brings to light a case resulting from the thorough analysis of case studies run by the ENT Clinic of the Emergency County Hospital "Sf. Apostol Andrei" of Galaţi, through the fact that otomastoiditis progresses given the presence of a congenital hemangioma located on the left half of the cephalic extremity, at a cervical, thoracic and abdominal level. The patient, aged 41, has been suffering from this disease since childhood and has undergone numerous surgeries up to this moment, but none has proven to be adequate for the extent of the lesion due to the malformation and the difficulty in providing general anesthesia with orotracheal intubation, the hemangioma being present in the oropharynx, hypopharynx and larynx. Given the overlapping of the two disorders, the surgical-medical approach to the ear damage has proven insufficient in time due to the risk of massive bleeding, taking into account the fact that the hemangioma was extended to the left ear duct, pharynx and larynx. For this reason, the disease has progressed, leading to extended erosive cholesteatoma with left otomastoiditis. The particularities of the therapeutic approach are presented along with anesthesiologic and surgical problems involved by the hemangioma. Although the risk of hemorrhaging was great, approaching the condition by choosing to provide general anesthesia and making the incisions only with the help of an electric scalpel, the case was eventually solved successfully from a surgical point of view.*

**Keywords***: hemangioma, otomastoiditis, cholesteatoma, surgical treatment*

## Introduction

Otomastoiditisis is a progressive inflammatory affection of the cellular antromastoidian system through a chronic bacterial suppurative process which consists in osteitic lesions, septic osteonecrosis, the presence of inflammatory granulomata, diffuse inflammatory hyperplasia or cholesteatoma which interferes with the antromastoidian region.

Chronic suppurative otomastoiditis may be a complication of a suppurated medium otitis or chronic effusion of acute otomastoiditis.

A series of favoring conditions lead to this pathology: hypovitaminized, hypoproteic, anergic or hypoergic ground, luetic and dysmetabolic TB, but also poor nursing and a low socio-economic and cultural level.

From a histopathological point of view, the types of injuries that may occur in case of inflammatory damage to the middle ear must be well differentiated because they help in making a proper topographic diagnosis, and an appropriate therapeutic attitude is taken.

Therefore, the damage to the mucosa (congestion, edema) is reversible under treatment with medication, while bone damage (osteitis, osteonecrosis, granuloma, cholesteatoma) are active and progressive lesions, requiring surgical intervention.

Clinical types :

- Hyperergical types
- Erosive geodic type
- Chronic suppurated otomastoiditis with silent progress.
- Antritis and antrocelulitis

Chronic suppurated otomastoiditis has "unclear" clinical symptoms and it is manifested through an otorrheic syndrome. Tonal audiometry indicates a transmission or mixed deafness. From a hematologic point of view, there are no significant changes, but when they do occur, they are signs of acuteness, specific infection or complication.

From the bacteriological point of view, ***Pseudomonas aeruginosa or colibacilli*** are more frequent. Imaging emphasizes mastoid osteolytic–osteonecrotic damages, with geodes and bone attachment.

The treatment is essentially by means of surgery, aiming to completely remove the progressive inflammatory damages of the middle ear, the effective drainage, avoiding complications, but also seizing the possibility of a local therapeutic approach.

The surgical technique depends on the topography and the extent of the damage, complications, the need for postoperative local monitoring, the local anatomical state, but also the clinical form of otomastoiditis.

The most appropriate intervention is rather the total avoidance of the eardrum and mastoid of the Schwartze type, which is performed in case of chronic suppurated cholesteatomatous otomastoiditis. When there is a Gelle fistula, the Wolf procedure is recommended.

## Case presentation

The patient (N.M.), aged 41, known with operated left chronic otomastoiditis, tibial plateau fracture and extended cutaneous hemangioma, comes to hospital due to severe headaches, left ear hypoacusis, vertigo, tinnitus. The patient has so far undergone numerous surgeries for otomastoiditis, but none adequate for the extent of the damage due to malformation and the difficulty of providing general anesthesia with orotracheal intubation, since the hemangioma is present in the oropharynx, hypopharynx and larynx. From the heredo-colateral history we notice that the patient's father is suffering from hepatic cirrhosis and hypertension, and his mother from type II diabetes mellitus.

Figure 1 – Congenital hemangioma located on the left hand of the cephalic extremity, at a cervical, thoracic and abdominal level

Figure 2 – Hemangioma extended to the oropharynx

The laboratory tests reveal: Rbc ↓ = 3.05 *10^6/ microL (3.50- 6.00); Hgb ↓ = 10.8 g/dL (12- 17); Hct ↓ = 33.5 % (35- 45); ESR 88mm/1h; intensely positive reactive protein C.

Schuller's mastoid X-ray shows a mastoid veiled with diffuse peripheral osteitis and central osteitic sequestrum.

The audiometry confirms transmission hypoacusis in the left ear.

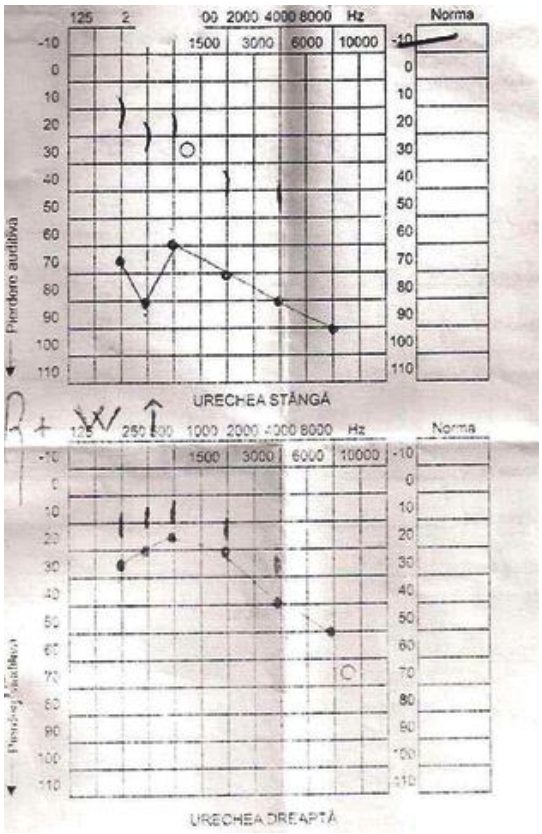


Figure 3 – Transmission hypoacusis in the left ear

Otoscopy - EED (external ear duct) clogged with purulent and edematous secretions, with the determination of inflammatory stenosis.

After crossing the stenosis with the ear speculum, a fetid granulomatous mass in the middle ear is revealed through a mesotympanic perforation with posterior erosion of the eardrum quadrant.

The examination of the ear's secretion is positive for the culture of coagulase-positive Staphylococcus aureus. The frontal sinus and lung X-ray reveal no pathologic aspects.

A cranial CT is performed with coronal and axial incidence which highlights the left mastoid with mastoid cells damaged through a massive osteitic process and the central presence of a cholesteatoma.

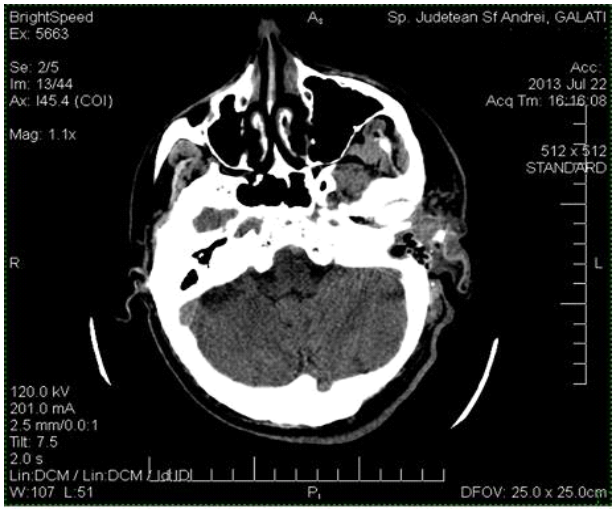


Figure 4 - Skull-brain CT - innate contrast media - left otomastoiditis, left otomastoid abscess (06/17/2013)

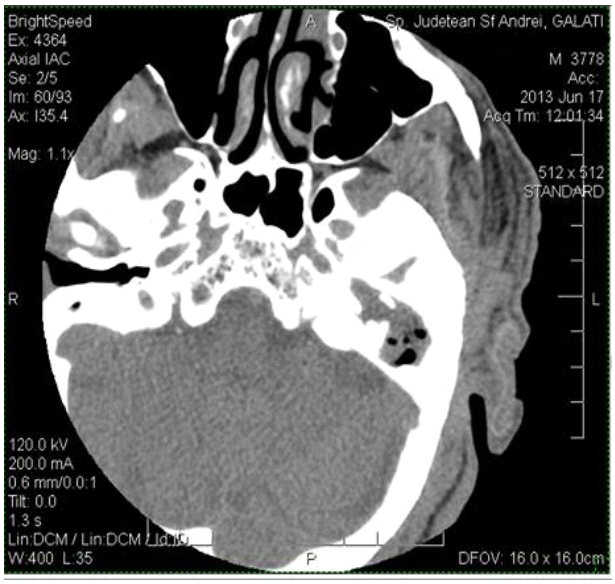


Figure 5 – Cranial-mastoid CT - left otomastoid abscess extended epicranially without intracerebral damage. (22/07/2013)

Therapeutic attitude: given the large lesions of osteitis, the absence of drainage and severe headache symptoms, urgent surgical treatment is decided upon with general anesthesia and orotracheal intubation.

After the removal of the periosteum, mastoid apophysis in the upper 2/3, then the mastoid antrum is trephined which opens without difficulty due to severe osteitic process. After the opening of the antrum, the mastoidis is curetted, thus facilitating the communication with the middle ear.

A large amount of granular, fungal, fetid tissue is removed, which engulfs a central cholesteatomatous mass.

The fungal and the granulomatous material, together with the cholesteatoma, is sent to the lab for a histopathological examination.

After the curettage, a limited plasty of EED is performed (due to the limitations imposed by the hemangioma). It should be noted that all the incisions have been made by electrocautery.

After the EED plasty, the mastoid cavity is tightly buffered. No suture is performed, since the hemangioma does not permit it.

The evolution is completely trailed with complete unbuffering of the mastoid cavity 7 days after surgery.

After the histopathological examination, the previous diagnosis is confirmed:

Sample 1 - hematic fibrinogen product which includes fragments of keratinized epithelium, granular tissue and keratinic detritus.

Sample 2 - fragment of conective tissue with granular tissue hematically infiltrated,, diffuse and moderately infiltrated polymorphic inflammation.

Sample 3 – fragment of connective vascular tissue with diffuse hematic infiltrate, young and moderate granular tissue infiltrated polymorphously and inflammatorily.

The histopathological aspects correspond with a cholesteatoma in a clinical context.

## Discussions

Given the overlapping of the two disorders, the surgical-medical approach of the ear damage has been insufficient in time due to the risk of hemorrhage, taking into account that the hemangioma was extended to the left external ear duct, pharynx and larynx. For this reason, the disease has progressed, leading to erosive extended cholesteatoma with left otomastoiditis.

Figure 6 – Postoperative aspect

## Conclusions

The presence of cutaneous hemangioma delays the diagnosis of otomastoiditis and complicates the therapy.

The classical surgical method was adjusted due to the risk of hemorrhage which would have occurred while making the incisions. The cutaneous hemangioma extended to the middle ear prevents the complete recovery and requires long-term postoperative care.

Although the risk of massive bleeding was considerably high, approaching the condition by providing general anesthesia and making the incisions with the electric scalpel, the case was eventually solved successfully from a surgical point of view.

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