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An chronic otitis media with effusion complicated with paravertebral abscess: Case report and review of the literature

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ABSTRACT

INTRODUCTION: Chronic otitis media are still present and often overlooked. Our observation is interesting by the association of double purulent complications of chronic otitis media: paravertebral abscess and lateral sinus thrombosis.

CASE: We report the case of a 54-year-old man with a long history of NPC, who presented to the hospital with severe right earache, associated with headache and 39° fever. CT scan and MRI assessed a complicated chronic otitis media of the middle ear by thrombophlebitis of the lateral sinus and posterior paravertebral abscess. He was put under antibiotic therapy and cortical mastoidectomy two weeks later. Nearly one-year follow up reveals a satisfactory recovery.

CONCLUSION: The chronic otitis media with effusion deserves careful monitoring. The early diagnosis and adequate treatment of this life-threatening lesion may result in excellent prognosis. Especially for young people in developing countries.

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1. Introduction

COM is a chronic inflammation of the middle ear and occurs in different interrelated forms.

Otitis chronic media with effusion (COME) affects 5–6% of children during the second year of life in developed countries, and is becoming less common in older children and rare in adults [1].

The eustachian tube plays an important role in the etiopathogeny of COM, its dysfunction is noted in 70% of operated patients [2]. The frequency of complicated COME has decreased significantly, especially after the use of efficient antibiotics. Their incidence varies from 0,7 to 3,5% [3,4].

These complications can be intracranial or extracranial, isolated or associated.

Paravertebral abscess is an extracranial complication, linked to the spread of the infection through the erosion of the internal cortex of the mastoid or via thrombosis of the lateral sinus (LS).

We report a case of a patient with a 30 years history of undifferentiated nasopharyngeal carcinoma type (UCNT) admitted for the management of COME complicated by abscess paravertebral and thrombosis of LS.

This presentation is interesting by the association of two purulent complications of non-cholesteatomatous COM and take into consideration pre-radiotherapy the possible management of the ventilation of middle ear throughout the procedure. It which has never been previously reported in literature. This case report is in line with the SCARE criteria [5].

2. Case presentation

A 54-year-old male patient, followed for UCNT since 1989, was admitted for ENT, head and neck surgery emergency care with intense right otalgia dating back one month, resistant to level II analgesic treatment, associated with bilateral temporal headaches with no other associated sign including otorrhea. otological examination revealed an opaque domed eardrum on the right side.

Nasal endoscopy showed crusts in the nasopharynx without lesional process. the audiological workup showed conductive hearing loss around 50 dB, with a flat tympanogram.

Laboratory tests demonstrated hyperleukocytosis at 20 000 elements/mL, C-reactive protein at 111 mg/dl. Using CT scan of the temporal bone revealed on the right side a filling of the eardrum and mastoid cells with erosion of the internal mastoid cortex, in addition, right lateral sinus thrombosis, ipsilateral and paravertebral abscess (Fig. 1).

an Intravenous probabilistic antibiotic therapy is initiated immediately consisting on third-generation cephalosporins 2

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Fig. 1. Axial CT image in bone showed an extensive opacification across the right mastoid air cells extending into the middle ear with loss of the internal cortex of the mastoid bone.



Fig. 3. Axial contrast-enhanced T1 weighted showed right paravertebral abscess with lateral sinus thrombosis additionally demonstrated fluid in the middle ear and mastoid air cells consistent with otomastoiditis.



Fig. 2. Sagittal T1 weighted image showing a collection measuring approximately in the floor of the right cerebellum lobe measuring approximately 26 × 20 mm.

g/24H, Metronidazole 500 mg/8H and aminoglycoside 160 mg/24H for 72 h followed by a 14 days oral (as of 200 mg every 12 h) courses. After two weeks of clinical course, an MRI confirmed the presence of the paravertebral abscess measuring 26 × 20 mm (Figs. 2 and 3).

The patient underwent mastoidectomy, atticotomy with exploration of the aeration pathways associated with cleaning and excision of bony sequestrs without any action on the thrombus abscess, with the surgery is performed by a qualified surgeon with 20 years of experience.

The postoperative course was uneventful. the patient was discharged after two weeks of intravenous antibiotic; he was kept on oral antibiotic therapy (ciprofloxacin 500 mg/12 H) for 2 months. After two years of follow-up, no recurrence was reported. An MRI was performed in the context of his cancerous disease and confirmed no local recurrence of UCNT or paravertebral collection.

3. Discussion

Chronic otomastoiditis is an inflammatory disease of the mastoid antrum system, associated with destructive lesions of the mastoid bone producing osteitis and persisting for more than three months [6]. It is externalized or latent and it's extension beyond the cavities of the middle ear gives rise to complications which may be single or multiple, inaugural or even asymptomatic [7]. These complications can be life-threatening or even compromise the major functions of the ear. More than 40% of patients with nasopharyngeal tumor have otitis media with effusion due to infiltration of the cartilaginous part of the eustachian tube rather than its compression [8,9]. The incidence of COME after radiotherapy in patients with nasopharyngeal or sinus tumors remains high ranging between 8 and 29% [10,8].

The COM manifests as foul smelling otorrhea (941%) and headache (647%) [11]. It could be inaugural only at the stage of complication, the case of masked mastoiditis which is a deceptive form

with normal eardrum, and the diagnosis is made only by imaging [12,13].

In our case, the patient was presented with severe ear pain which has not responded to level II analgesics for 2 weeks without any other associated otological sign, in particular otorrhea. However, radiotherapy causes immune and mucosal changes in the nasopharynx and middle ear, resulting in otitis media with effusion which is complicated by mastoiditis [13]. Post-irradiation otitis media with effusion, has been defined as a retrotympanic effusion without signs of acute infection, it remains the most common complication [14,15].

Chronic otitis media (COM) can manifest with two types of complications. They can sometimes be difficult to diagnose; due to the multiplicity of their clinical presentations not only by the fact that antibiotics sometimes lack the symptoms. These two groups are represented by intracranial and extracranial which are the most frequent [16].

Meningitis is the most frequent intracranial complications occurring approximately in 34–77% [17,18] of cases.

The other complications being, is decreasing order of frequency, otogenic intracerebral abscesses, which are the most severe complications of COM, lateral sinus thrombosis (LST) and subdural or epidural empyema.

Extracranial complications are acute mastoiditis, Bezold's abscess, facial palsy, petrositis and labyrinthitis [18].

These complications result from the accumulation of secretions on aperture of Aditus ad antrum, by mucous edema causing a high-pressure state which is responsible for demineralization of the osseous septum. This process gradually spreads towards the cortex which ends up breaking.

There are four ways pathogens spread: anatomical (performed), bone erosion, thrombophlebitis or hematogenous.

Lateral sinus thrombosis may result from an inflammation of its adventitia. It can gradually extend through the venous system intracranially (cavernous sinus) or extracranial (internal jugular vein) secondary to the erosion of the internal cortex of the mastoid or via thrombosis of the emissary veins [19,20].

Otogenic SL thrombophlebitis is often asymptomatic or presented with non-specific signs. The germs found in thrombophlebitis are varied, but quite often anaerobic (*Fusobacterium necrophorum*, anaerobic streptococci, *Bacteroides*) or mycosis [21–23], paravertebral abscess is an unusual complication of COM.

This deep abscess can result from a rupture of the internal cortex of the mastoid by contiguity with the SL with diffusion and proliferation of germs in the deep cellular-aponeurotic tissues. It is a complication that has not previously been reported.

CT-scan and angiography MRI are complementary, making it possible to link the infectious focus to LS thrombosis or rupture of the internal cortex of the mastoid, to look for other intracranial complications that may be asymptomatic and to look for a local recurrence of the nasopharyngeal tumor in this patient [24].

It is a medico-surgical emergency, its treatment consists in the excision of dead tissues and the creation of anatomical conditions preventing a recurrence.

Medical treatment is based on intravenous antibiotic therapy containing ciprofloxacin 200 mg/12 H) for 2 or 3 weeks or triple therapy based on third-generation cephalosporins, Metronidazole and aminoglycoside [25].

The choice of antibiotic is based on the bacteriological profile in patients who have received radiotherapy for nasopharyngeal carcinoma and the germs responsible for COM [26].

The decision lies in the introduction of preventive anticoagulation which should be adapted on a case-by-case basis [2].

The literature was inconclusive, expert opinions led us to discuss whether or not to put the patient on anticoagulant. Surgery in com-

pllicated COM remains imperative to eradicate the original source of infection.

4. Conclusion

The clinician must keep in mind a high suspicion of insidious mastoiditis in the high-risk patients (diabetics, immunocompromised, post-radiotherapy) and may have fatal consequences. Early identification and careful long-term clinical monitoring are recommended to detect post-radiation adverse effects or complications after an otitis media with effusion which remains a major challenge for diagnosis and management.

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All authors disclose any conflicts of interest.

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Ethical approval

The study committee of the university hospital center approves the favorable opinion to publish this work.

Consent

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Author's contribution

Dr. AB, Dr. AL, Dr. DB, Dr. AA, Dr. FE have analysed and performed the literature research, Pr. RG performed the examination and performed the scientific validation of the manuscript. Dr. Asmae Bazzout was the major contributors to the writing of the manuscript. All authors read and approved the manuscript.

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