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OTITIS EXTERNA, ENDING AS MALIGNANT DIAGNOSIS: A CASE REPORT OF ACUTE MYELOID LEUKAEMIA.

Rula Naqi[1], Hesham Yusuf[2], Fedaa Al-Sindi[3], Aly Rashed[4], Khalid Al-Sindi[5]

[1] Intern, ENT Department – King Hamad University hospital

[2] Professor & Consultant, ENT Department – King Hamad University Hospital.

[3] Senior House Officer, Pathology Department – King Hamad University Hospital.

[4] Consultant, Hematology department – King Hamad University Hospital.

[5] Professor & Consultant, Pathology department – King Hamad University Hospital.

Abstract:

Otitis externa (OE) is an inflammatory process of the external auditory canal.The prevalence of OE is around 10%. The aetiology is often multifactorial, including infectious and non-infectious factors. Pseudomonas aeruginosa and Staphylococcus aureus are the most common isolated organisms.

We are presenting a case report of a 36-year-old male, who presented to an otolaryngology clinic with a history of right-sided ear block, associated with severe otalgia and otorrhea, for more than a month. The ear canal was narrowed with boggy, pulsatile granulation tissue-like swelling postero-superiorly. The patient received multiple courses of antibiotics, topical, oral and parenteral elsewhere on the assumption of OE, but with no improvement. Accordingly, further investigations are warranted. Blood tests showed leukocytosis with 34% blast cells and marked monocytosis, along with anaemia and thrombocytopenia. Computed tomography (CT) temporal imaging showed opacification of the right middle ear cleft and right mastoid air cells, and a small ill-defined soft tissue density was noted within the left anterior meso-tympanic cavity. Then, a biopsy of the ear mass revealed myeloid sarcoma. Finally, flow cytometry confirmed the diagnosis of AML. The patient was referred to Bahrain Oncology Center as a case of myeloid sarcoma in the ear with concomitant AML. He received multiple cycles of chemotherapy. Repeated CT temporal imaging was done afterwards. It showed complete resolution of the previous right ear opacification and left ear soft tissue density. Thus, remission was achieved.

The atypical presentation of AML and myeloid sarcoma, reveals the importance of following up patient regularly and assessing the response to the treatment given. If there was no response, as in this case, thorough investigations should be done immediately, to reveal the hidden diagnosis.

Corresponding author:

Fedaa Al-Sindi *

Senior House Officer,

Pathology Department – King Hamad University Hospital.

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INTRODUCTION:

Otitis externa (OE) is an inflammatory process of the external auditory canal. (1, 2) The prevalence of OE is around 10%. (1)The aetiology is often multifactorial, including infectious and non-infectious factors.(1, 2) Pseudomonas aeruginosa and Staphylococcus aureus are the most common isolated organisms.(3)

The classic presentation of OE includes otalgia, otorrhea, itching and impairment of hearing.(4) Most cases are treated on an outpatient basis, by topical and systemic antimicrobial agents and pain management.(3, 5)

Occasionally, OE is resistant to antimicrobial medications.(6) This might indicates either a resistant organism or an underlying disease that mimics or complicates OE.(6) Examples of which are necrotizing otitis externa or unusual presentation of acute myeloid leukaemia (AML).(5, 7-9)

AML is an abnormal proliferation of blast cells.(10) It is the most common type of leukaemia reported in adults, around 80% of the cases.(10) AML with otolaryngologic presentations has been recently rising in the field.(11) Some AML cases presented as a unilateral nasal block, bilateral facial palsy, and hemotympanum.(12-14) In 1.4-9% of AML cases, patients presented with myeloid sarcoma (MS), which is an extramedullary form of immature granulocytes proliferation.(11, 15, 16) Several cases have been reported with MS involving the external auditory canal, in different age groups.(5, 11, 17) However, up to our knowledge, no cases has been published in the middle east region.

We are presenting a case report of a 36-year-old male, who presented to an otolaryngology clinic with a history of right-sided ear block, associated with severe otalgia and otorrhea, for more than a month. The ear canal was narrowed with boggy, pulsatile granulation tissue-like swelling postero-superiorly. The patient received multiple courses of antibiotics, topical, oral and parenteral elsewhere on the assumption of OE, but with no improvement. Accordingly, further investigations are warranted. Blood tests showed leukocytosis with 34% blast cells and marked monocytosis, along with anaemia and thrombocytopenia. Computed tomography (CT) temporal imaging showed opacification of the right middle ear cleft and right mastoid air cells, and a small ill-defined soft tissue density was noted within the left anterior meso-tympanic cavity. Then, a biopsy of the ear mass revealed myeloid sarcoma. Finally, flow cytometry confirmed the diagnosis of AML. The patient was referred to Bahrain Oncology Center as a case of myeloid sarcoma in the ear with concomitant AML. He received multiple cycles of chemotherapy. Repeated CT temporal imaging was done afterwards. It showed complete resolution of the previous right ear opacification and left ear soft tissue density. Thus, remission was achieved.

CASE REPORT:

Here we presented the case of a 36-year-old male patient, a known case of hypertension, hypothyroidism and obesity, who presented to an otolaryngology clinic with a history of ear block, reduced hearing, and minimal pus discharge from the right ear of month duration. There was slight intermittent pain. The left ear was normal. The patient denied any history of vertigo, otalgia, nasal symptoms, or throat complaints.

Physical examination of the right ear revealed narrowed ear canal with boggy, pulsatile granulation tissue-like swelling postero-superiorly and evidence of sub-total perforation of the tympanic membrane. Otherwise, the left ear, neck, throat, and nose examination was unremarkable.

This was not his first presentation to the otolaryngology clinic. The patient visited several clinics before. The impression was otitis externa. Thus, he received multiple courses of antibiotics, including, topical along with ear pack, oral (cefuroxime and ciprofloxacin) and parenteral (IV ceftazidime) courses. Each course lasted around 2 weeks with no resolution of his symptoms.

Computed tomography (CT) scan of the temporal bone showed partial sclerosis of the right mastoid air cell, along with total opacification of the right middle ear cleft and right mastoid air cells with intact ossicles and bone boundaries. Partial opacification of the left mastoid in the left anterior meso-tympanic cavity encasing the anterior surface of the left unco-malleolus articulation with no evident erosions & intact articulation. Normal & comparable width of the internal auditory canal on both sides with no cerebellopontine angle masses. Normal appearance of the ossicular chain & inner ear structures.(Figure.1,2,3,4) Thus, the findings are suggestive of bilateral otomastoiditis. Which indicates the previous history of recurrent ear infections, but it will not explain the ongoing disease process.

Finally, a biopsy of the ear lesion was taken, which showed a dense mixed cellular population, dominated

by myeloid blasts with high nucleocytoplasmic ratio, apparent cytoplasmic eosinophilic granules and large convoluted nuclei with fine chromatin and prominent nucleoli. This lesion displays a clear effacement of the hosting ear canal skin and tissue architecture where the neoplastic cells infiltrate between the dermal appendages and show variable perineural and peri-lymphovascular permeation. Foci of tumour cell necrosis and cellular crush artefacts are also seen. Mitotic activity is not brisk. Immunohistochemistry was positive for CD45, CD43, CD68, CD99 & Cd117, while negative for CD3, CD15, CD20, CD34, TDT & CD56 with overall morphological appearances are highly consistent with myeloid sarcoma, most likely representing an extramedullary manifestation of soft tissue acute myeloid leukaemia.

At the same time, A complete blood count (CBC) showed leukocytosis (32.61 x10^9/L), Hemoglobin (11.2 g/dL), and mild thrombocytopenia (114 x10^9/L). In the peripheral blood smear, 34% blast cells and marked monocities. Bone marrow aspirate showed hypercellular with 32.2 % myeloblasts, Promonocytes, moderate monocytosis and marked eosinophilia, suggesting an acute Myeloid Leukemia (FAB-M4eos).

Bone marrow trephine showed hypercellular bone marrow with average cellularity 95%. All normal bone marrow elements are markedly depressed -with occasional megakaryocytes- and replaced with ~90.0% blast cell infiltration (mixed myeloblasts and monoblasts in morphology) with evident eosinophilia. - Reticulin stain shows a normal pattern (WHO grade 0-1 MF). - IHC of CD34 showed ~50% positivity.

Immunophenotyping by flow cytometry revealed two leucocyte populations; CD45 Dim (Immature/Myeloblasts) gate showed: Positive CD34, CD13, CD33, HLA-DR, CD38, CD117 and MPO, Negative CD19, CD79a, CD10, cCD3, CD7, CD1a, CD56, CD3, CD4, CD8, CD11b, CD14, CD36, CD64 and TdT. Monocytes gate showed: Positive CD4, CD11b, CD14, CD36, CD64, CD33 (bright), HLA-DR (partial) and MPO. Negative CD19, CD79a, CD10, cCD3, CD7, CD1a, CD56, CD3, CD8, CD117 and TdT.
The final diagnosis in correlation with PB, BM aspirate, BM trephine and Flow cytometry reports was AML M4-eso according to the French-American-British (FAB) AML classification. Conventional karyotype analysis was performed on 20 metaphases, revealing 46,XY,inv(16)(p13q22)[20]. Molecular biology testing was positive for the translocation /inversion AML fusion gene CBFβ/MYH11, negative for (CEBPA, Nucleophosmin 1, KIT Exons 8-11 and 17) mutation analysis and other relevant acute Myeloid Leukemia Therapeutic Gene Mutation NGS Panel (FLT3, IDH1, IDH2, TP53) were also negative.

According to AML risk stratification based on the 2017 European LeukmiaNet (ELN), this patient is in the favourable-risk group. Then, AML induction "7+3" therapy (7 days of cytarabine (Ara-C) + 3 days of daunorubicin) was started, and on day 14 bone marrow aspiration, trephine showed residual blasts of 15%-20% of acute Myeloid Leukemia. (IHC stains: CD 34 and CD 117) with MRD of BMA at 5.6 %. We repeated BMA, and MRD which showed (Trilineage hematopoiesis with blasts at 5.5 %. and 2.75% respectively) so partial remission (PR) was achieved because of minimal residual disease (MRD) of bone marrow aspiration was positive. Subsequently, the patient received 2nd cycle with the same doses also Intrathecal was given with negative CSF and complete remission was achieved based upon BMA, BMB and MRD of bone marrow aspiration (1%blast, <1.0% blast) also normalization of his cytogenetics and negative chromosome FISH, Interphase—CBFB; inv(16)(p13.3q22)/t(16;16)(p13;q22).

CT temporal bone was done which showed almost total resolution of the previously noted opacification of the right middle ear cleft and right mastoid air cells with minimal hypodensity seen in the right mastoid air cell opacification with intact ossicles and bone boundaries and total resolution of the previously noted soft tissue density noted in the left anterior meso-tympanic cavity. Significant regression of the previously noted opacification of the left mastoid air cell with again noted minimal air-fluid level could be suggestive of acute left mastoiditis. (Figure.5,6,7,8)

The case was discussed in the HTB for the future plane concerning Allogenic bone marrow transplant (BMT) versus high dose cytarabine and local radiotherapy and the panel decided to give high dose cytarabine for 3 cycles and postpone the decision for local radiation until MRI assessment and to avoid radiation toxicity.

MRI BRAIN + IAM follow-up was done which showed the internal acoustic canals and vestibular aqueducts appear symmetric and normal in size, normal vestibulo-cochlear nerves on both sizes with normal size and signal, bilateral normal size and configuration of the vestibule, cochlea, and semicircular canals noted with no abnormal signal

intensities or diffusion restriction seen along middle ear clefts and both mastoids. (Figure.9,10)

The Image finding was also discussed between both oncology and otolaryngology teams. They conclude that the patient has no abnormality and no need for any further management and keep him under follow-up.

The patient received 3 cycles of high-dose cytarabine as consolidation with good tolerance for chemotherapy apart from neutropenic fever which was managed by antibiotic and antifungal and other supportive treatment according to his situation and also blood and platelet irradiated according to his CBC follow-up results. The patient is doing well till now with regular follow-up.

DISCUSSION:

The Definitions OE indicates an inflammation of the cutaneous or subcutaneous layers of the external auditory canal.(1, 2) It can extend to involve the outer part of the ear e.g. the pinna.(2) OE is classified into acute, chronic and necrotizing types.(18) Acute OE is when the inflammation lasts for no more than three months.(2) Chronic OE is when the inflammation continues for more than three months.(2) Finally, necrotizing OE, also known as malignant otitis externa, is a rare type of OE that involves bone destruction in addition to systemic symptoms.(19) In this case, the patient initial presentation fits the criteria of acute OE. Since the inflammation was ongoing for around a month. However, as the case was persistent with a resistant course, it was clear the the diagnosis of OE is unlikely, which was proven subsequently.

Leukaemia is a diverse group of haematological malignancy that involves abnormal proliferation of one lineage of the leucocytes.(20) Leukemia is classified into acute or chronic.(20) Acute leukaemia when there is a sudden onset of symptoms, associated with more than 20% blasts.(20) Chronic leukaemia, in contrast, when there is a slow progression of symptoms and is associated with less than 20% blasts.(20) AML is the most common subtype of acute leukaemia.(20) It is defined as an abnormal proliferation of the immature myeloid cell, forming around 20% or more, in the bone marrow or peripheral blood.(10, 20) This compromises the production of other cell lineages from the bone marrow.(10) Going back to the blood results of our patient in table.1 and the bone marrow trephine result, he had a very high white blood cell (WBC) count. The differential shows >20% blasts and a very high monocyte count. This follows the criteria of AML. However, this still might not typically explain his otologic symptoms. Thus biopsy was needed, which confirmed the diagnosis of myeloid sarcoma.

Myeloid sarcoma is the extramedullary equivalent of AML.(11) It forms a mass, consisting of abnormal proliferation of immature myeloblasts.(15) It can present in any site of the body, e.g. the skin, bone, lymph nodes, mucosal surfaces, and organs, among which are otolaryngology-related organs, and even particularly very rarely in the external auditory canal in the case under study.(5, 11, 15, 17)

Epidemiology

OE is a common disease that can affect any age population.(2) A peak incidence has been documented between the age of seven and twelve years of age.(2, 5) It occurs in 4 per 1000 people in the United States.(21) However, there are no international statistics for the incidence of OE.(21) The approximate prevalence of OE is 10%, with a majority of cases being in the acute variety (95%).(2) Since OE is very common, along with the rapid onset of symptoms in our patient, OE was the top differential diagnosis. Until red flags appeared, e.g. absence of otalgia, not being diabetic, and failure to respond to several antibiotic course, where further investigations were considered.

As AML, was the ultimate diagnosis of our cases, it is stated that the annual incidence in the United States is 4.3 per 100,000.(22) The average age is 65-68 years of age.(10) AML is more predominant in males compared to females with a ratio of 5:3.(10). Myeloid sarcoma, on the other hand, can happen in any age, but it commonly affects both extremes of ages.(15) It is encountered in 1.4-9% of AML cases.(15, 23) It can be diagnosed before, concomitant or after the diagnosis of AML.(23) In children, studies showed that it is happen concurrently with AML in 6.7-23.3% of the cases.(15) However, sometimes myeloid sarcoma can be diagnosed in the absence of AML.(15) This is known to be around 1.3% of the cases only.(15) Moreover, in children, the most common site for myeloid sarcoma is the skin, followed by orbits.(23) In this case the diagnosis of AML was concomitant with the myeloid sarcoma lesion, which was in the external auditory canal. This is an unusual site for myeloid sarcoma.(11) Only a few cases have been reported with myeloid sarcoma presenting as acute otitis externa.(11, 24) In term of demography, our patient is relatively young for AML, this made the possibility of AML down the list.

Etiology and risk factors

Pseudomonas aeruginosa and Staph aureus are the most common organism involved in OE, 41% and 15%, respectively.(2, 25) Fungal OE documented in 6.5% of the cases.(25) Moreover, some cases are noted to be polymicrobial.(25) There are several risk factors for OE. The most important is swimming, hence the name swimmer's ear.(2) Also, humidity, ear canal injury by cotton bud and obstruction of the canal by foreign body or accumulated cerumen.(2) In this case, there was no history of any risk factor for OE. The initial diagnosis of OM was made based mainly on the clinical features and the fact that OE is a common disease. Additionally, the culture swab showed XXX which is unlikely to be seen in cases of OM

On the other hand, there are many important risk factors for AML, with myelodysplastic syndrome being the commonest.(10) Others include hematological disorder e.g. myelofibrosis and aplastic anemia, congenital disease e.g. down syndrome, environmental e.g. radiation and smoke, and finally iatrogenic e.g. chemotherapy agents. (10, 26) The patient did not have any risk factor of the mentioned above and he only had pure otologic presentation. This masked the diagnosis for a period of time, as the presentation was atypical. This case shows the importance to always having broad differential diagnosis and do maximum efforts for each patient to rule out critical diagnosis, even if they were not very common. Physician should not only focus on the common benign diagnosis.

Pathophysiology

The external ear canal lining consists of epithelial cells, ceruminous glands and hair follicles.(2) Cerumen is said to protect against trauma and infections.(27) OE happens if the cerumen was not produced sufficiently, or by direct trauma to the epithelium.(2) Also, OE is seen if there was moisture accumulation, which will result in ph changes and encourage bacterial growth.(2, 18) This will result in inflammation and swelling of the external auditory canal, ending up with the typical OE symptoms.

Although myeloid sarcoma results in a similar clinical findings, including swelling and narrowing of the external auditory canal, as seen in our case, it happen by different pathophysiology.(23) In this disease there is an accumulation of abnormal blast cells outside the bone marrow.(23) Commonly seen in the skin (28.2%), lymph nodes (16.3%) and testis (6.5%).(11) In this case, it was in the external auditory canal, presenting as a case of OE. Only few similar cases have been reported so far.(11, 24)

Myeloid sarcoma proposed pathophysiology is by homing signals that attracts the blast cells into specific area.(23) Different chemokines have been suggested by different studies.(23) Faaij et al. suggested that myeloid sarcoma site has specific receptor, CCR5, CXCR4, CXCR7 and CX3CR1, which attracts the blast cells and result in tumor formation.(28) Furthermore, Stefanidakis et al proposed that blast cells usually express matrix metalloproteinase (MMP)-9, which will interact with leukocyte surface beta (2) integrin, resulting in malignant cell migration.(29) Although the definitive pathophysiology is still undergoing research, the end up result is that malignant cells will accumulate in an area within the body, other than the bone marrow. It will form a mass and will compress on the nearby structures, as we saw in our case.(23)

AML pathophysiology involves accumulated genetic mutation in genes involved in hematopoiesis.(10) These mutations result in abnormal proliferation of blast cells in the bone marrow, along with suppression of other cell linages.(10) Most mutations happen de novo, but some are associated with the previously mentioned risk factors.(10) The type of genetic mutation determines the prognosis.(10) T(8;21) and Inv (16), which is seen in our case, is associated with good prognosis and survival rate of 66%.(10, 30) On the other hand, t(6;9), inv(3) and 11q mutations are associated with poorest prognosis and higher risk of death.(10)

Clinical presentation

OE is diagnosed clinically by history and physical examination.(2) Patient will complain of otalgia, itching, otorrhea, hearing loss and ear fullness.(2, 18) Physical examination by otoscopy will reveal edema and erythema in the external auditory canal.(2, 18) There might be some debris or granulation tissue in case of necrotizing otitis externa.(2, 7) Tympanic membrane might be erythematous as well, but in some of the cases it cannot be visualized because of the swollen auditory canal.(2, 4) Some patients might also have fever and generalized fatigue.(2) OE is classified into mild, moderate, and severe, based on otoscopic findings.(2) Mild usually shows minimal changes and mild narrowing, and severe shows complete canal obstruction along with pain and systemic symptoms.(2) In our case, the patient otoscopic findings were going with severe OE, as there was diffuse swelling and narrowing of the external

auditory canal, along with sensation of ear block and hearing loss. Surprisingly, there was no otalgia or systemic symptoms. This might have been the first red flag, that was missed. Having severe form of OE is unlikely to be painless. Simply because OE involves inflammatory mediators, which transmit pain signals.(31)

The patient on the other hand, did not have any symptoms or signs of AML. He did not have anemia, bruises, rash, or recurrent infections.(10) There was no evident bone pain and no organomegaly.(10) The overall state of the patient was well looking, and did not show any tiredness or fatigue.(10)

The only clinical presentation he had was related to the underlying myeloid sarcoma. Myeloid sarcoma symptoms and signs are based on the size and the location of the tumor.(23) Patient usually complains of compression symptoms, pain and bleeding from the affect site.(23) In this case, the patient had only compression symptoms, as he had blocked ear, some degree of hearing loss and had history of minimal pus discharge. The was no otalgia and no history of bleeding. Systemic symptoms were absent as well. There was no fever, anemia, or fatigue.

Diagnosis

OE, as mentioned previously, is a clinical diagnosis.(2, 4) In some cases, where patient has severe form of OE, or not responding to antibiotics, culture swab should be done.(2, 4) This helps in identifying the organisms involved and to guide the choice of antibiotics, according to the resistance pattern.(2, 4)

Imaging and blood tests are not routinely used in diagnosing OE. They are considered only if the patient is not improving and other differentials e.g. necrotizing malignant externa, AML and lymphoma, or other forms of malignancy are to be ruled out.(7)

Blood investigations including CBC, inflammatory markers, and blood glucose level, should be done.(7) CBC will show high WBC count and the differentials of WBC might guide us towards the possible etiology.(32) The main inflammatory markers are ESR and CRP.(7) They indicate an ongoing inflammatory process, but most importantly they are used prognostically to assess the response to antibiotics treatment.(7) Blood glucose measure to assess the diabetic state of the patient.(7) The uncontrolled diabetes result in complicated form of OE, in which unusual organisms can be involved, making the treatment more difficult.(33)

The imaging modalities commonly used are CT scan and magnetic resonance imaging (MRI) scan.(7, 34) CT scan is used to assess bony involvement and erosions.(7, 34) MRI evaluate the nearby status of soft tissue and if there are any intra-cranial complications.(7, 34)

Finally, biopsy of the external auditory canal might be considered as a last resource, to identify the nature of swelling.(7) It is done if the above investigation were not enough to reach a conclusive diagnosis.(7)

In this case, as the patient presented to the clinic, he had already received multiple courses of antibiotics, making the culture at this point yieldless.(35) CT temporal imaging was done. It showed opacification of the right middle ear cleft and right mastoid air cells, and small ill-defined soft tissue density noted within the left anterior meso-tympanic cavity. However, there was no significant bone involvement, and some of the findings were related to previous infections. Thus, it did not explain the ongoing clinical finding. MRI was not done, because the concern of the invasion was ruled out by the CT scan, and it is unlikely to explain the nature of swelling in the external auditory canal. Thus, patient was booked for blood tests and biopsy of lesion. The blood test showed AML pattern, with leukocytosis, and high blasts and monocytes. Then, the biopsy confirmed the diagnosis of myeloid sarcoma.

Treatment

OE is treated by pain medication, ear cleaning and antibiotics.(2, 18) Commonly paracetamol and nonsteroidal anti-inflammatory drugs (NSAIDS) are used to relieve the pain.(2) Topical antibiotics drops are used, such as polymyxin, ofloxacin or ciprofloxacin, along with steroids, to treat both the infection and inflammation, respectively.(2) Sometime the ear canal is highly edematous, ear drops will not be effective as it cannot penetrate through the swelling. In such cases ear wick, with antibiotics is used.(2, 36) It remains for two to three days and changed afterwards.(2)

Oral or parenteral antibiotics are not used routinely to treat OE.(2) They are indicated for immunocompromised patients e.g. human immunodeficiency virus (HIV) patients, patient with comorbidities e.g. diabetes, failure to respond to previous treatment, and in necrotizing otitis externa.(2)

In this case, the initial diagnosis was OE. Patient received multiple courses of antibiotics with different routes. He received topical antibiotics in ear wick, as the area was highly swollen, for a week. There was improvement in the symptoms. Then he was started on a course of oral antibiotics, including cefuroxime and ciprofloxacin for two weeks. Finally, he received parenteral IV ceftazidime course for another two weeks. The patient did not improve at all. This was a red flag. It is impossible for OE not to respond to all these antibiotics. If not cure, at least improvement in OE. This point directed the physician to do further extended investigations to reveal the underlying diagnosis. Also, it shows the importance of following up patients after receiving the treatment regimen. Even though OE is a benign disease, a concomitant malignant disease might also be there. Thus, it is important to assess patient's response to the antibiotics treatment and ensure that the patient is fully cured.

As for myeloid sarcoma treatment, there are different options, including systemic chemotherapy, radiation, surgical resection and stem cell transplantation.(16, 23, 37) The recent guidelines suggests to follow AML chemotherapy treatment.(16, 37) The rational is that many patients treated with surgery or radiation therapy only developed AML afterwards.(16) Thus, it is better to start with systemic chemotherapy.(37) There are different types of chemotherapies can be used, such as cytarabine, which was used in this case, fludarabine, and idarubicin.(16)

Figures:

Parameter	Result	Normal range
WBC	32.61	4-11
Hb	11.2	13-18
RBC	3.5	4-5.5
MCV	96.2	80-100
MCH	32.1	27-32
MCHC	33.3	31-36
Platelets	114	150-450
ESR	89	0-20
CRP	92.6	0-10
FBG	5.84	3.6-5.8
Uric acid	560.3 umol/L	200-425
LDH	516 U/L	100-190 U/L

Table.1: Blood tests results. Complete blood count (CBC) showed high white blood cells (WBC), with low hemoglobin (Hb) and low platelets. High inflammatory markers, including c-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). Fasting blood glucose (FBG) was within the normal range. Red blood cells (RBC). Mean Corpuscular Volume (MCV). Mean Corpuscular Hemoglobin (MCH). Mean Corpuscular Hemoglobin Concentration (MCHC). Lactate Dehydrogenase (LDH).

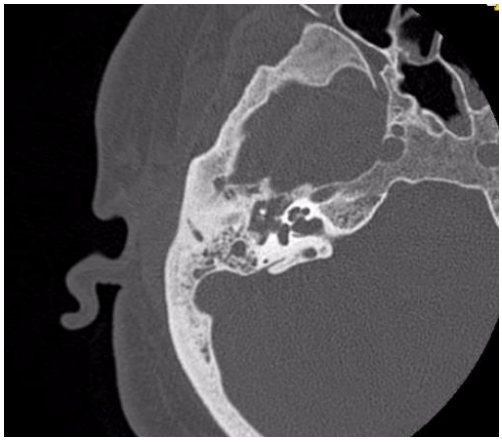

Figure.1: CT scan of the right internal auditory canal – axial view

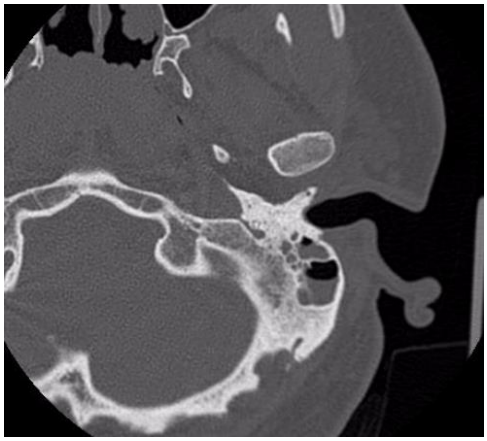

Figure.2: CT scan of the left internal auditory canal – axial view

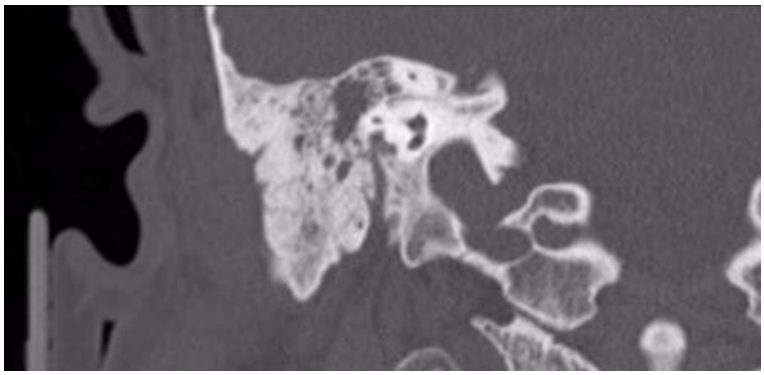

Figure.3: CT scan of the right internal auditory canal – coronal view

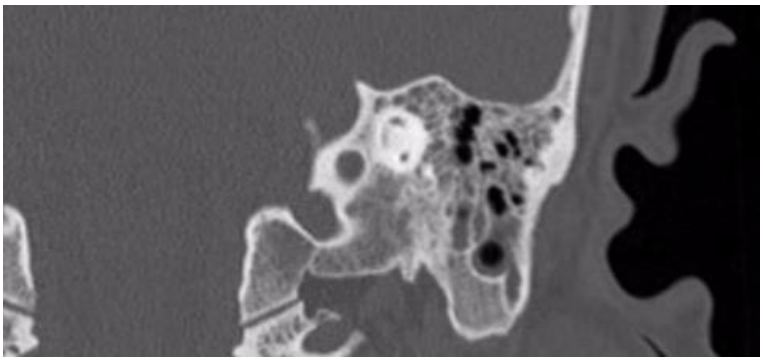

Figure.4: CT scan of the left internal auditory canal – coronal view

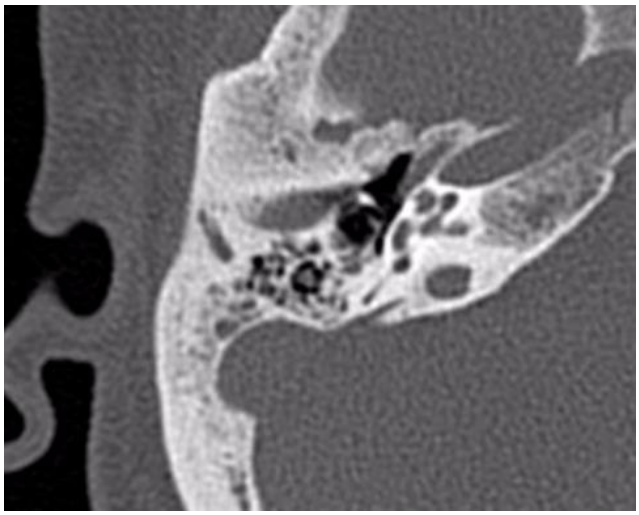

Figure.5: CT scan of the right internal auditory canal – axial view. After receiving the treatment course.

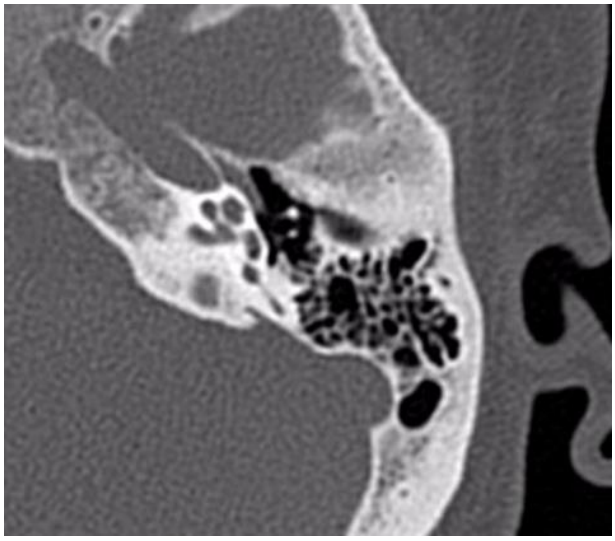

Figure.6: CT scan of the left internal auditory canal – axial view. After receiving the treatment course.

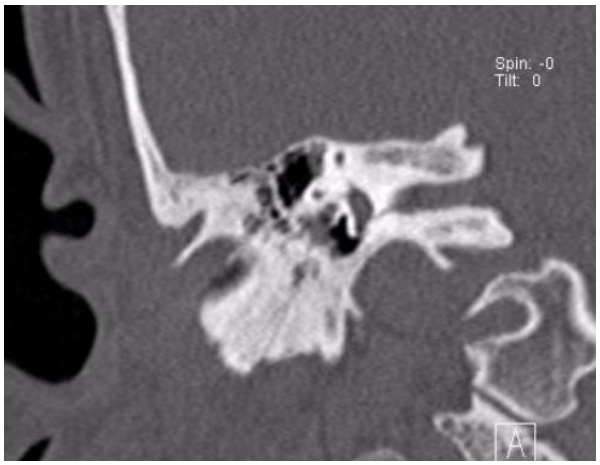

Figure.7: CT scan of the right internal auditory canal – coronal view. After receiving the treatment course.

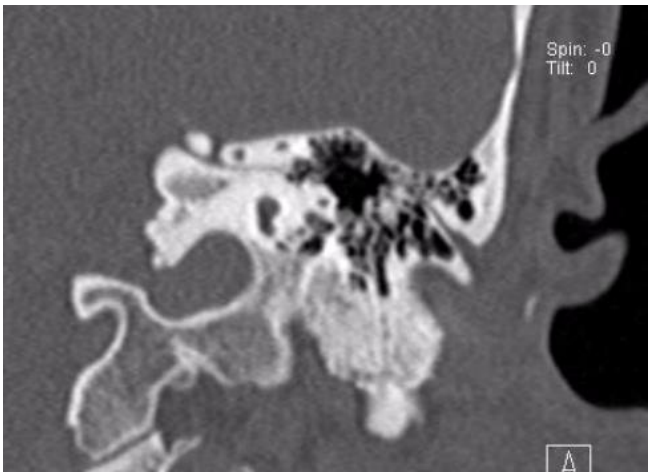

Figure.8: CT scan of the left internal auditory canal – coronal view. After receiving the treatment course.

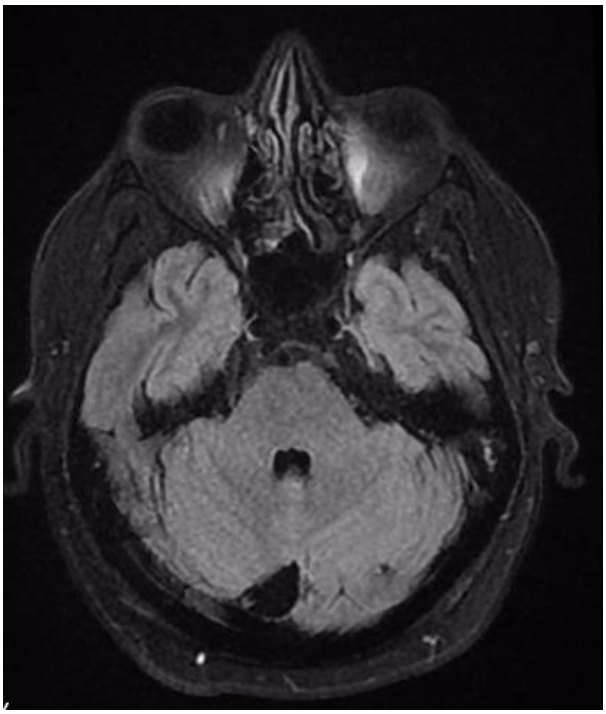

Figure.9: T2 MRI of the brain, axial view. After receiving the treatment course.

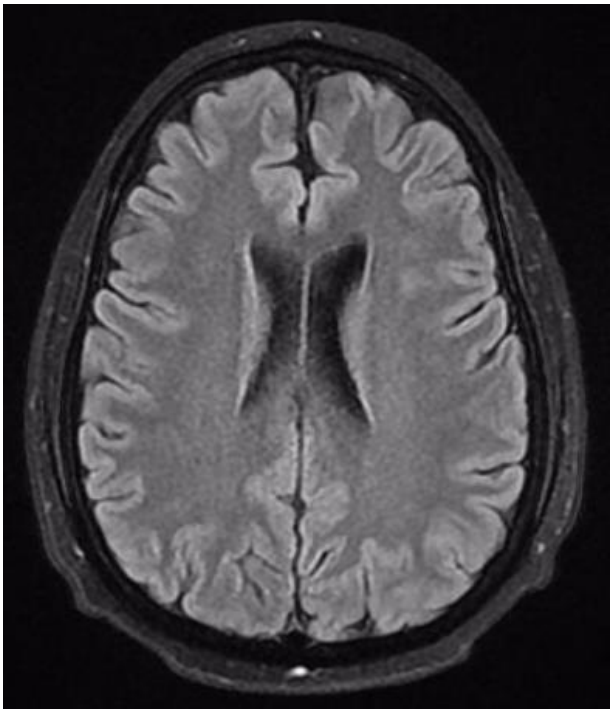

Figure.10: T2 MRI of the brain, axial view. After receiving the treatment course.

CONCLUSION:

The atypical presentation of AML and myeloid sarcoma, reveals the importance of following up patient regularly and assessing the response to the treatment given. If there was no response, as in this case, thorough investigations should be done immediately, to reveal the hidden diagnosis.

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