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Report of Four Cases of Misdiagnosis About Glomus Jugular Tumor

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Abstract

Aim To raise awareness of glomus jugular tumor and decrease misdiagnosis and mistreatment rate. **Method** Reviewing, summarizing and analyzing the clinical data of four misdiagnosed patients visiting our hospital from July, 2008 to September, 2012. **Outcome** The four misdiagnoses are respectively and successively secretory otitis media, cerebral infarction and cholesteatoma of external auditory meatus. **Conclusion** As the symptom and signs of glomus jugular tumor apt to be confused with other diseases, clinician's lack of knowledge would cause misdiagnosis and mistreatment.

Key words: Glomus jugular tumor; Misdiagnosis; Analysis

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INTRODUCTION

Glomus jugular tumor is a rare clinical disease which has low disease rate, and its symptom and signs are easily to be confused with other diseases. At later period, posterior neuropathy would be brought about, adding difficulty to treatment and causing patient deaths seriously. To raise awareness of this disease, achieve early diagnosis and early therapy, and further improve living quality of patients, for the four clinical misdiagnoses from July 2008 to September 2012, we report and analyze as follows:

1. CASE SUMMARY

Example 1: A 31-year-old female patients visited out-patient department(OPD) of another hospital in June 2008 for over one month's tinnitus and aural fullness of right ear, and was diagnosed and treated as secretory otitis media. The return visit one month later found that the above symptoms were not relieved than first visit and the hearing level declined. By checking the outpatient cases in another hospital, we found the description that, the patient had cold history, and tympanic membrane presented congestion and retraction during the physical examination, while electric listening test showed the right ear had low frequency mild conductive hearing loss. When asking for details of the history and nature of tinnitus, the patient said his right ear tinnitus coincided with her heartbeat. Under the ear endoscope there was localized pink shadow in the back lower part of the right tympanic membrane, and pressure strength test result was positive. Then the patient was arranged for a head nuclear magnetic resonance imaging showing increased density foci in lower middle tympanum of the right ear and expanded jugular fossa, and was suspected of glomus jugulare tumor. Under our recommendation, the patient transferred to a provincial hospital for treatment and operation and was pathologically diagnosed with glomus jugulare tumor postoperatively. Two months later, the reexamination in our hospital showed light postoperative peripheral facial paralysis. This symptom was relieved half a year later.

Example 2: a 68-year-old female visited for deviation of right corner of the month and one year's choke after drinking. She was diagnosed and treated as cerebral infarction by medicine systems in other hospital. Later in August 2011 she came to our department for treatment, and said she had had pulsatile tinnitus for over 2 years, and had hearing loss and pressure strength test result was positive. Her hearing gradually declined and the right corner of mouth was askew for nearly one year. Also choke appeared after her drinking. The blood pressure was

in the normal range and the physical activity was good. The ear endoscope inspection showed pink shadow under the tympanic membrane. Meanwhile MRI result was that the jugular formen of right ear spreaded and surrounding bone was destructed. In view of our hospital's conditions, we recommended the patient transfer to the superior hospital for treatment. She was pathologically diagnosed with glomus jugulare tumor postoperatively. And there was postoperative facial paralysis left till now.

Example 3: A 28-year-old female visited in September 2012 for right ear aural fullness with repeatedly discharging pus and hemorrhagic secretion over three months. 10 years ago the patient had a medical history of otitis media. She described that three months ago, there was aural fullness and tinnitus of the right ear with unnamed incentives. She accepted the Longdanxiegan capsule treatment at a local health clinic, for she thought it was because of the deficiency fire. After that, the sense of a fluctuating tinnitus increased, and there was discharging pus and hemorrhagic secretion of the right ear. Meanwhile there were no drinking cough, hoarseness, facial numbness and mouth askew. Then she was treated as otitis media with ofloxacin and antibiotic therapy and had less improvement for more than 20 days. The inspection showed external auditory canal swelling and granulated neoplasm which bleeding freely upon touch. Inside there were cholesteatomatoid epidermis and purulent secretion. The outcome of diagnosis was cholesteatoma of external auditory meatus. We gave her out-patient anti-inflammation and multiple ear canal cleanups, then carried out granulation resection. During the operation, there was large amount of bleeding. Then she was given the gelatin sponge for compression hemostasis. Specimens were taken for pathological examination and immunohistochemistry, and it was diagnosed with nonchromaffin paraganglioma. The head nuclear magnetic resonance imaging showed that the jugular area of right ear was occupied. Pathologic findings of the specimen showed chemoreceptor. So the patient transferred to superior hospital for treatment, and was diagnosed by operation with glomus jugular tumor. In later follow-ups the patient was doing nicely postoperatively under normal conditions. Within three months no recurrence was found in temporal bone nuclear magnetic inspection.

Example 4: A 51-year-old female, one year's tinnitus of left ear, visited in April 2012 for finding new neoplasm in the left ear canal one month ago. The patient had the tinnitus one year ago, and then the fluctuating tinnitus aggravated. We treated her as nervous tinnitus with mecobalamin, and one month later she came for treatment again. The results of examinations showed there was non-deformity of her bilateral auricles, and right external auditory canal was smooth. Tympanic membrane was integrity, clear and no tympanic cavity effusion. There was visible bright red neoplasm in the deep of left external auditory canal with 3mm × 2mm size, and it blocked the lower part of the tympanic membrane. Umbilical ministry above and relaxation of malleus have clear signs. Pressing the left common carotid artery and the tinnitus disappeared. The CT showed the left jugular foramen expansion and the bone destruction. Also there was soft tissue shadow in the hypotympanum and bone destruction of the ear canal wall. Then the patient transferred to the superior hospital for surgery treatment.

2. DISCUSSION

2.1 Glomus Jugular Tumor Is the Common Name of Jugular-Tympanic Paraganglioma Tumor

Another name is nonchromaffin paraglioma. It's chemodectoma. The disease is female predominated, and female to male ratio is 1:4-1:6, but mainly afflicts people between the ages of 50-60. The tumor grows slowly, and its expansionary growth is primarily through anatomical channel to adjacent tissue. Then it enwraps and erodes the blood vessels and nerves, and corroding dense bone tissue causes the damage of the skull base and the vital cranial nerves, especially glossopharyngeal vagus nerve and accessorius. This disease (Liu & Liu, 2011) may initially only show fluctuating tinnitus, and tumor growth giving compression to the surrounding structures leads to hearing loss, dizziness, earache and ear canal hemorrhagic secretion. The early examination shows there are cherry red mass lesions of the lower part of the rear tympanic membrane, which make a breakthrough to granuloma. And the surrounding cranial nerve compression symptoms will appear when the disease matters a wide range. The position of the disease is rather concealed. It presents complicated clinical features and has no characteristic symptom. The main manifestations are pulsatile tinnitus and hearing loss. At the middle and late period, impairment of lower cranial nerves often happens, thereamong prosopoplegia accounts for 10%-40%, while trachyphonia and dysphagia account for 55%. Since the above symptoms are similar with part of some other diseases, the clinicians are likely to misdiagnose because of lack of awareness.

2.2 Pathological Features

Tumor Cells (DONG, 1996) Have Similar Forms With Normal Chemoreceptor Cells, Only Having Slightly Increased Volume and More Obvious Nuclear Atypia. But it has rare nuclear division. Tumor cells arrange in nest shuttle sheet with rich blood vessels of mesenchyma. The center mesenchyma of tumor often has hyalinization. Tumor cells were sometimes fusiformis which look like endothelial cells, and this kind of tumor tissue forms are angiomatous. Immunohistochemistry shows positive neurons specific enolase and negative carcinoembryonic antigen.

2.3 Differential Diagnosis

1.a middle ear Cancer: a medical history of earache, ear discharging pus and hemorrhagic secretion, bone destruction in temporal bone examination. 2 cholesterin granuloma and idiopathic blood tympanic cavity: tympanic membrane is blue, but no pulse. 3 jugular bulb pseudotumor: that is the high jugular vein sphere, as a result of congenital development. 4 other tumors of jugular foramen: meningioma and nerve sheath tumors.

2.4 High-Resolution (Oldring & Fisch, 1979) CT: It Has a Good Resolution to Benign and Malignant Tumors of Skull, Showing the Tumor Extent and Bone Destruction

Because of the big variation of the jugular foramen, the high-resolution CT doesn't have high sensitive reaction in terms of jugular foramen expansion. Magnetic resonance imaging examination has high soft tissue contrast, directly showing blood vessels and nerves of the jugular foramen, and often there are pathological vascular flow void image. Angiography can clearly show the arteries supplying the tumor. The jugular vein sphere tumors are mainly supplied by ascending pharyngeal artery, internal maxillary artery and vertebral artery.

2.5 Surgical Approach Depends on Tumor Sizes, and Whether There are Joint Disease and Cranial Nerve Damage in the Erosion Scope or Not

Classification and surgical approach: scholars at home and abroad, basing on their experience and considering the problem from different angles, proposed different sub-type in order to ensure the disease extent and choose the appropriate surgical approach. Domestic classifications and surgical approaches (Huang, Yang & Zhou, 2002) are as follows: lesions confining to the tympanic cavity: endaural approach. Accumulating vertical section and horizontal segment of tympanic mastoid facial nerve: post aurem approach. Accumulating the external auditory canal and middle ear and extending down deep to the neck: the ear-neck joint approach. Accumulating external auditory canal and middle ear, backward upward and inward eroding the intracalvarium or petrous apex: skull-ear joint approach. Accumulating external auditory canal and middle ear, back upward eroding intracalvarium or petrous apex, and then outward the neck: skull-ear-neck joint approach. Lesions come from the vagus nerve, only involving the neck outside the jugular foramen: side of the neck approach. Lesions forward eroding the middle cranial fossa and fossae infratemporalis on the horizontal segment of the carotid canal: the middle cranial fossa and fossae infratemporalis approach.

2.6 For a Wide Range of Jugular Vein Sphere Tumor, It's Inoperable

There are complications left after part of tumor resection. And the old and infirm are not suitable for surgery, but mainly radiotherapy (Mendenhall, et al, 2001). etc. give a systemic review about the radiotherapy of jugular vein sphere tumor. It shows a higher rate of local control, less serious complications, no fatal complications, and no malignant changes.

2.7 Analysis of the Four Cases of Misdiagnosis

The inquiry about case history wasn't detailed and knowledge about pulsatile tinnitus was inadequate. Tinnitus is a common clinical and frequently encountered disease. In accordance with reports of foreign literature, the incidence of tinnitus morbidity among the crowd is 10%, in which pulsatile tinnitus accounts for 4%. The rhythm of tinnitus in keeping with palpitation is the feature of vascular pulsatile tinnitus. If the result of pressure strength test is positive, the disease would be judged as venous pulsation. The patients in the above-mentioned Example 1 and Example 2 both had the history of pulsatile tinnitus. In Example 1, the patient was misdiagnosed with secretory otitis media because of cold history. In Example 2, the symptoms of lower cranial nerves were wrongly related to the common clinical and frequently encountered symptoms of senile cerebral infarction, and the topic – comment of tinnitus was neglected.

The physical examination wasn't detailed. The patient in Example 1 was inspected with tympanic membrane congestion but was misdiagnosed with inflammation. However, according to clinical observation, most tympanic membrane inflammatory congestion come about loosely or at the periphery predominantly at the early stage, later would spread to the whole membrane. But in Example 1, the pink changing mainly happened at the back lower part of the tympanic membrane, which didn't meet the law of inflammation development.

The patient had a complicated onset while fundamental medical practitioners lacked knowledge of glomus jugular tumor. The symptoms of facial paralysis and choke after drinking in Example 2 were easily related to cerebral infarction. Moreover, the patient was middle-aged, which was in line with the age of the common clinical and frequently encountered disease of cerebral infarction, and then ear check was ignored. The onset in Example 3 was atypical, and was easily related to common meatus auditorius disease. Pathologic inspection should be taken on meatus auditorius mass especially bleeding freely upon touch to avoid misdiagnosis and delay in treatment. In example 4, because our knowledge of tinnitus was inadequate and the physical examination wasn't detailed, we missed the important signs of neoplasm in tympanic cavity.

CONCLUSION

Although the incidence rate of this disease is low and the tumor grows slowly, the enlarged tumor involves of local significant structure and the back group cranial nerve. All these increase the difficulty and risk of the treatment and

reduce patients' quality of life, so we need enhance the understanding of the disease, achieve early detection and early treatment and reduce misdiagnosis in order to obtain better therapeutic efficacy.

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