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Case Report Open Access

A glomus tumor of left lower extremity arising from left superficial femoral artery: A case report

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ABSTRACT

Glomus tumors, usually used as a synonym of carotid body tumors, are of neuroectodermal origin and a part of the extra-adrenal neuroendocrine system pathologies. These lesions are the most frequent paragangliomas located in the neck. Herein, we present a rare case of mass lesion on the left leg arising from the left superficial femoral artery. After successful excision and removal, the pathological examination result was reported as a glomus tumor.

Keywords: Glomus tumor, lower extremity, surgical excision.

Typically, glomus tumors, also known as carotid body tumors, chemodectomas or carotid body paragangliomas, are vascular component dominant tumors which often arise from paraganglioma cells of the carotid body area. In most cases, these tumors are located at the carotid bifurcation. A small number of patients are familial forms with an autosomal dominant inheritance associated with conditions such as tuberous sclerosis, neurofibromatosis type 1, von Hippel-Lindau disease, and Carney triad. Malignant transformation is rare and may occur via bone, lung, liver, and lymph node metastases. The lower extremity is an extremely rare location of the involvement.[1]

In this report, we present a case of surgical excision of a glomus tumor arising from the left superficial femoral artery.

CASE REPORT

A 53-year-old male patient was admitted to the emergency department with an history of a slowly growing and painful bulky lesion on his left leg above the knee for three years. His medical history included the use of antihypertensives for 10 years, right knee surgery with implantations, and tobacco abuse for over 20 years. His medical prescription before the admission included acetylsalicylic acid 300 mg/day, omeprazol 30 mg/day, and metoprolol 100 mg/day. Physical examination findings were normal, except for a non-pulsatile bulky mass lesion located medially of his left leg above knee. There was no active bleeding. The lesion was non-sensitive and non-flexible. Ultrasonography and Doppler ultrasound in the emergency setting revealed two mass lesions together around 5×4 cm in diameter, each (Figure 1). There was no evidence of intravascular thrombosis. Magnetic resonance imaging was unable to be performed due to the knee implant. The electrocardiogram showed a normal sinus rhythm for 90 bpm. On auscultation, the lungs and heart were clear. There were no significant pathological findings on the abdominal evaluation. Laboratory blood tests showed no abnormalities including the cardiac panel. The arterial vessel pulses were detectable on both side of upper and lower extremities. Chest radiographs and M-mode echocardiograms were also normal. Surgery was decided and a written informed consent was obtained from the patient.

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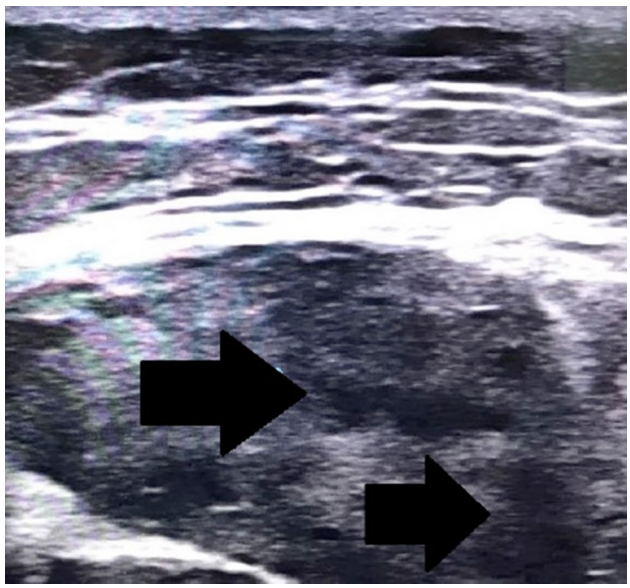

Figure 1. A preoperative ultrasonographic image of mass lesion.

Following preoperative preparation, the patient was operated under general anesthesia and endotracheal intubation. A surgical skin incision was made over and along the mass lesion. There were two distinct lesions approximately 3×4×5 cm, which were immobile and tightened to surrounding tissue (Figure 2). Total mass excisions were achieved with multiple ligations of the collateral vascularity and careful dissection. Despite the fact that the mass was located at the close neighborhood of the vessels such as artery and veins of the area, we observed no direct vascular invasion other than dense attachments. A fine dissection was made, but a further vascular surgery including graft interpositioning was not necessary. Operation was carried out free of any complications with total excision (Figure 3). The patient was transferred to the cardiovascular surgery intensive care unit. Early postoperative clinical follow-up was uneventful. The patient discharged at the postoperative fifth day.

The pathological examination of the specimens obtained from the excision material showed a glomus tumor (Figure 4).

DISCUSSION

The first reports of glomus tumors date back to the 16th century. Von Haller,[2] in 1762, described a mass at the carotid bifurcation area in a glomus body-like structure. In 1812, Wood[3] described a glomus tumor as painful subcutaneous tubercles. In 1840, Valentin[4] defined it as ganglia tympanica. A glomus jugulare tumor case was first reported by Rosenwasser[5] in 1945. A long time after von Haller,[2] Mulligan,[6] in 1950, introduced the term chemodectoma to describe glomus tumors for their chemoreceptor tissue origin. In 1974, Glenner and Grimley[7] renamed the tumor as paraganglioma and introduced a classification according to the localization, innervation, and histopathological features of the tumor. Four types of glomus tumors are defined according to its origin of carotid body or nodosum of vagus: Type 1 is defined as within 2 cm of carotid bifurcation and no cranial

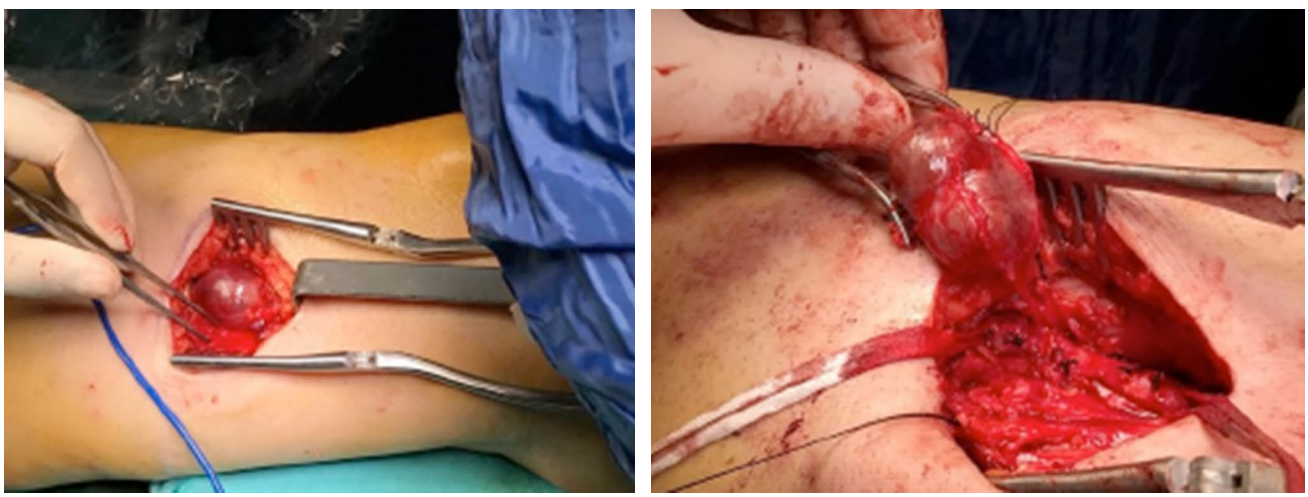

Figure 2. Intraoperative excision of mass lesion.

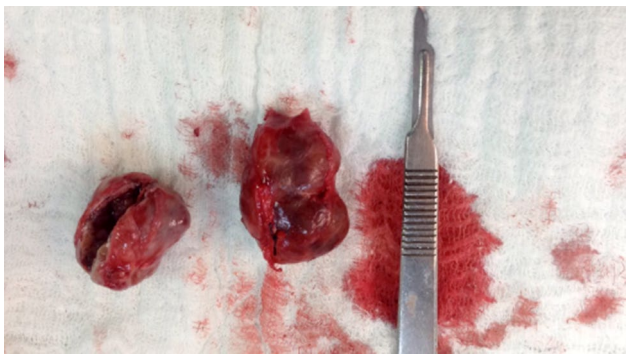

Figure 3. The excised mass lesion.

nerve deficits; Type 2 extending 2 cm beyond carotid bifurcation or encases internal carotid artery; Type 3 extending within 2 cm of or through skull base; and Type 4 bilateral/multiple and/or atypically located tumors. In our case, the tumor was Type 4.

Rarely, as in our case, paraganglionic cells of the extra-adrenal neuroendocrine system may occur in various localizations of the body including orbit oculi, pterygopalatine fossa, larynx, pharynx and dermis, and upper and lower extremity.[8] These cells in these localizations seem to involve atypical accumulation of glomus caroticum cells. Malignancy is related to size, deeper location, infiltrative growth, mitotic activity, and nuclear pleomorphism with necrosis.

The reported surgical mortality for carotid body tumors of the neck is around 8 to 10%, which is mainly due to a major neurological complication and/or deficit at the postoperative period.[9] Glomus tumors of the extremities are rarely reported in the literature. Nonetheless, we believe that the mortality may be significantly lower in these extremity regions than the rate of neck tumors.

Alternative treatment techniques such as coil embolization and gamma knife surgery have been advocated in the literature.[10] Due to the dense vascularity of these tumors, despite a preoperative definitive diagnosis of these inner and surrounding tumor vessels, a complete treatment by a coil embolization and/or gamma knife surgery is difficult to achieve. Furthermore, a massive bleeding during these alternative approaches may complicate excision, the second step of surgery, with higher morbidity and mortality rates. In our opinion, a direct surgical removal is the treatment of first choice, particularly in cases larger than 2 cm.

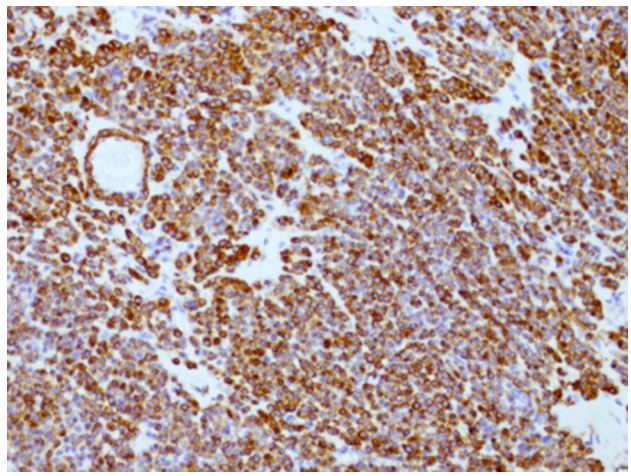

Figure 4. Histopathological appearance of excision material (H-E ×100).

In conclusion, glomus tumors of the lower extremity are extremely rare. A total excision and removal of the mass lesion can be achieved with appropriate measures.

Declaration of conflicting interests

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