A Case of Easily Misdiagnosed Intramuscular Hemangioma

Yujia Li
The Second Xiangya Hospital, Central South University

Ke Chou
changsha central hospital

Wei Zhu
Changsha Central Hospital

Jiepeng Xiong
Changsha Central Hospital

Yun Gu
Changsha Central Hospital

Min Yu (docyummy@126.com)
Changsha Central Hospital  https://orcid.org/0000-0001-9683-9182

Case report

Keywords: intramuscular hemangioma, gluteus medius muscle, misdiagnosis

DOI: https://doi.org/10.21203/rs.3.rs-78793/v1

License: © This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License
Abstract

Background: Intramuscular hemangioma is a kind of benign vascular tumors often occurs in the lower extremity, which occurs in the gluteus medius muscle, and was misdiagnosed as lumbar disc herniation is rarely reported.

Case presentation: A 36-year-old female who complaint of accidental pain of the left buttock. She was diagnosed as lumbar disc herniation, and accept the treatment. The symptom slightly relieved, but will relapse soon. Until she takes the X-ray and MRI, a mass was found in the gluteus medius muscle, which was suspected of malignant tumor. Then the tumor was resected and the final diagnosis is intramuscular hemangioma. The symptoms disappear completely and not recurrent.

Conclusion: There are usually no special symptoms in patients with intramuscular hemangioma, so it is often misdiagnosed, when the treatment effect is not satisfied, the cause should be timely and correctly analyzed.

Background

Hemangioma is a kind of tumor that originated from vascular tissue which occurs in cutaneous tissue, subcutaneous tissue, intramuscular, splanchnic tissue and osseous, almost every part of the body. The intramuscular hemangioma represents less than 0.8% of all hemangiomas[1]. But it is the most common type of deep intramuscular tumors[2, 3] which is more common in people younger than age of 30. The intramuscular hemangioma in the body is usually asymptomatic at the initial stage. Only when the tumor is enlarged, it may compress and push the adjacent muscles and nerves, resulting in various symptoms. Clinical lesions can involve any part of skeletal muscle, but the lower limbs are common. The larger the intramuscular hemangioma, the more difficult the treatment. For the early symptoms of the intramuscular hemangioma are not obvious, and have no specificity, it's difficult to early observe and make a clear diagnosis and often misdiagnosed. We present a case of a patient with an accidental pain of the left buttock with radiation pain of the back of the thigh. She was diagnosed as lumbar disc herniation, and accept long term treatment. But the symptoms still exist, and recur frequently.

Case Presentation

A 36-year-old female who complaint of accidental pain of the left buttock with radiation pain of the back of the thigh for five years. She used to be a saleswoman and now mild obesity. Five years ago, she feels pain of the left buttock. The symptom happens about 6 to 8 times every year, which can be endured. 1 year earlier she seeks medical advice, no abnormality appearance found in physical examination of the spine and left hip, the ROM of the spine and the hip is normal, straight-leg raising test is suspicious, the gait is normal. Consider the above, the doctor suggest that she reduce daily movement, have a rest, lie down and take some physiotherapy, include traction, magnetic thermotherapy and wear waistline. Every time after take these treatments, the symptoms will slightly relieved soon, but when she go back to work,
especially walk or stand for a long time, the symptom will relapse. Then as long as she takes the previously mentioned physiotherapy and some medicine, the symptoms will be better but not disappeared. Until 6 month ago, she was referred to an orthopaedic surgeon, who requested a X-ray(figure a) and magnetic resonance image(figure b,c,d) of the pelvis, which demonstrate that the density of the left ilium is not uniform, the edge is fuzzy, and high density shadows in the soft tissue, lumpy mixed abnormal signal in the gluteus medius and gluteus minimus muscles with unclear boundary with bone destruction of ilium, which is similar to the imaging features of malignant tumor, the SPECT also suspect that it is the bone metastasis of malignant tumor. After embolization of tumor main blood supply, the surgical intervention-the debulking surgery was conducted. The operation was performed under general anesthesia, in the lateral position, use the incision on the surface of tumor. The tumor is in gluteus medius muscle and very large with calcified lesions. After carefully separate and exposure, we can see the the gross appearance of the tumor, then the tumor was removed thoroughly (Fig. 2). We can see the degeneration and atrophy of gluteus medius muscle due to the compression and erosion of the tumor. During the surgery, the amount of blood loss is very small than preoperative prediction. There are no postoperative complications and no weakness in the gluteus. The immunohistochemical results of pathological sections prove that the specimen is intramuscular hemangioma with no evidence of malignant tumor. After operation the patient was referred to rehabilitation exercise and gradually return to work. For the first week, she was allowed only isometric contraction of lower limb muscles everyday without hip movement, the next week, she was encouraged to move the hip, first passive then active, first flexion then abduction, plus aquatic therapy, thus gradually recover the muscle strength. Now about 11 months after operation, the manual muscle testing scale of the gluteus medius muscle is level 5, she has resumed normal work and exercise level with no symptoms recur.

Discussion And Conclusions

Intramuscular hemangioma is a kind of benign vascular tumors, neoplastic proliferations of blood vessels that often occurs in skeletal muscle. It is characterized by the proliferation of endothelial cells, originated from the vascular tissue of mesoderm, and can be added to the lesions after trauma with infiltrative growth, invasive growth, no obvious envelope and boundary. The cause remains uncertain, both congenital and posttraumatic theories are considered in origin\[^4\]. Traumatic and hormonal influences have been suggested and may contribute to the aetiology or growth spurts\[^5,6\]. Most of the intramuscular hemangioma is accompanied by mature adipocyte tissues of different numbers, also known as intramuscular angiolipoma. In some cases, chronic anoxia of myocytes and accumulation of metabolites may occur due to poor local blood circulation, which may be manifested as muscle swelling, pain, or even infiltrative scleroma, involving the whole muscle, fibrosis, calcification, ossification and other bone damage. There are usually no special symptoms in patients with intramuscular hemangioma on the early stage, maybe no mass, no pain, no swelling. In the later stage, myosclerosis, contracture, muscle and joint deformities and dysfunction may occur. The most common symptom of intramuscular hemangioma is a slowly enlarging mass usually not associated with cutaneous changes, and pain without any bruit, pulsation, or thrill\[^7\], especially after exercise, just like the patient. Because of its deep
location, variable size and shape, lack of specificity of clinical symptoms, and its biological characteristics are not obvious, the intramuscular hemangioma’s preoperative diagnostic rate is only 8–19%\[^8\]. So it is easy to be misdiagnosed clinically, and needs to be differentiated from soft tissue malignant tumors and others. The case is just demonstrates such typical symptoms and be misdiagnosed first. Once she work or exercise, she feel pain of the left buttock, with radiation pain of the back of the thigh which is very similar to lumbar disc herniation. It may be related to the compression of sciatic nerve by the tumor. Furthermore the patient is mild obesity and her job needs to rush around. So she was diagnosed as lumbar disc herniation, which delayed the diagnosis and treatment to some extent. For intramuscular hemangioma, X-ray and MRI are often used in clinical diagnosis. On the X-ray film, soft tissue block shadow or reticular density increased shadow can be seen, and about half of them can be seen vein stone shadow. MRI can give more diagnostic clues, on T1WI the tumor showed mixed shadow with equal or slightly high signal, while T2WI showed mixed shadow with high signal. The patient’s X-ray demonstrates the nonuniform density of the left ilium with large calcified lesions in the gluteus medius muscle. The MRI shows high density shadows in the soft tissue, lumpy mixed abnormal signal in the gluteus medius and gluteus minimus muscles with unclear boundary. All these clues cannot give us a clear diagnosis, furthermore the SPECT suspect it as malignant tumor. So we perform the angiography, and find the main blood supply. Generally before the resection of tumor, if there is a definite bruit and following arteriography identifies the feeding vessels, embolization of the vessels followed by meticulous extirpation of the tumor is recommended. For embolization decreases the profuse bleeding and shrinks the tumor allowing for safer and complete resection. Resection should follow embolization within hours, for collaterals reestablish themselves rapidly. So we embolize the main blood supply of the tumor during the angiography in order to control the bleeding and safety of surgery.

Many literature have reported intramuscular hemangioma occur in various sites within the muscles of the trunk and the upper and lower limbs with predominance in the thigh muscles\[^9\]–\[^11\]. About 45% of the intramuscular hemangioma are found in the lower extremity, 27% in the upper extremity, and the remaining are equally distributed between the head and neck area and the trunk. Because they are rare types of vascular tumors and are not usually suspected from clinical findings, they are of interest to surgeons as a cause of diagnostic problems\[^12\]. In this case, the intramuscular hemangioma occurs in the gluteus medius muscle, and demonstrate the similar symptom of lumbar disc herniation. It's very rare and easy to misdiagnose. For the intramuscular hemangioma often lack of specific symptoms, mild, sometimes good or bad, no alertness. It should be noted that when the treatment effect is not satisfied, the cause may not be timely and correctly analyzed, which should complete further inspection.

**Abbreviations**

MRI=magnetic resonance imaging; SPECT=single photon emission computed; tomography; ROM=range of motion; T1WI=T1 weighted image; T2WI=T2 weighted image.

**Declarations**
Acknowledgements

None.

Authors' contributions

Min wrote, edited and reviewed the manuscript, and agreed to be accountable for all aspects of the revision in ensuring that the accuracy or integrity of any part of the work was appropriately conducted. Ke and Min finished the operation. Yujia is responsible for follow-up and data collection. All authors read and approved the final manuscript.

Funding

This work was supported by Research funds of Hunan Health Commission (No.20201318).

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

The patient signed an informed consent form.

Consent for publication

All authors agreed to publish.

Written consent has been obtained from the patient.

Competing interests

The authors declare that there is no conflict of interest.

References

1. Cohen AJ, Youkey JR, Clagett GP, et al. Intramuscular Hemangioma. JAMA. 1983; 249:2680-2682.
2. A. Memis, et al. Magnetic resonanc imaging of intramuscular haemangiomas with emphasis on contrast enhancement patterns, Clin. Radiol. 1996;51:198-204.
3. D. Welsh, A.S. Hengerer, The diagnosis and treatment of intramuscular hemangiomas of the masseter muscle, Am. J. Otolaryngol. 1980;1:186-190.
4. Ciurea ME, Ciurea RN, Barbulescu AL, et al. Intramuscular hemangioma of the arm: ultrasonography and pathology features. Rom J Morphol Embryol. 2016; 57: 521-524.
5. Nurliza I, Kenali MS, Sani A. Intramuscular haemangioma in the head and neck. Med J Malaysia. 2007; 62:409-410.
6. Melman L, Johnson FE. Intramuscular cavernous heman-gioma. Am J Surg. 2008;195(6):816-7.
7. Sunil TM. Intramuscular hemangioma complicated by a Volkmann's like contracture of the forearm muscles. Indian Pediatr. 2004; 41:270-273.
8. T.A. Shallow, S.A. Eger, F.B. Wagner, Primary hemangiomatous tumors of skeletal muscle, Ann. Surg.1994; 119:700-740.
9. Fnini S, Messoudi A, Benjjeddi Y, Elandaloussi Y, Hassoun J, Garche A, et al. Intramuscular hemangioma of the forearm: seven cases. Ann Chir Plast Esthet 2013; 58:243-247.
10. Dahmam, A. Meyer zu Reckendorf, G. Intramuscular hemangioma of the hypothenar eminence. A case report. Hand Surg Rehabil 2017; 36:175-177.
11. Euicheol Jeong, Hyo Seong Kim. Intramuscular Hemangioma of the Pronator Quadratus Muscle of Forearm. The Journal of Hand Surgery (Asian-Pacific Volume) 2016; 21:262-265.
12. Muramatsu K, Ihara K, Tani Y, et al. Intramuscular Hemangioma of the Upper Extremity in Infants and Children. J Pediatr Orthop. 2008; 28:387-390.

Figures

Figure 1

(a) X-ray shows the density of the left ilium is not uniform, the edge is fuzzy, and high density shadows in the soft tissue, calcified lesions near the left ilium (yellow arrow). (b) MRI show soft tissue mass of left buttock (red arrow). (c,d) Lumpy mixed abnormal signal in the gluteus medius and gluteus minimus muscles with unclear boundary with bone destruction of ilium (red arrow).
Figure 2

(e) the gross appearance of the tumor, no obvious envelope and boundary; (f) excised tumor tissue.