

Congenital Venous Malformation Of Skeletal Muscle: A Case- Based Review

Priya Ranjan¹, Deepak Kumar^{2*}, Rajan kumar³, Suman Badhal⁴, Vishal kumar⁵

¹ Senior Resident, PMR Department, AIIMS, Deoghar, Jharkhand, India.

² Associate Professor, PMR Department, AIIMS, Deoghar, Jharkhand, India.

³ Assistant Professor Paediatrics Department, AIIMS, Deoghar, Jharkhand, India.

⁴ Professor, PMR Department, V.M.M.C & SAFDARJUNG Hospital, Delhi, India.

⁵ Additional Professor Orthopedics Department, AIIMS, Deoghar, Jharkhand, India.

² Associate Professor, Department of Mechanical Engineering, MIT School of Engineering, MIT ADT University, Pune, India.

Email: ¹ priyaranjan116@gmail.com, ² deepdixit7200@gmail.com, ³ rajan2k6khusbu@gmail.com, ⁴ drsuman_badhal@yahoo.com, ⁵ drkumarvishal@gmail.com

*Corresponding Author: Deepak Kumar

Associate Professor, PMR Department, AIIMS, Deoghar, Jharkhand, India.

DOI: 10.47750/pnr.2022.13.S10.479

Abstract

Skin color changes, localized edema, and discomfort are signs of typical venous malformations. Because the affected areas are inconspicuous and the condition is being infrequent, venous malformation in the skeletal muscle has significant potential to be ignored. Intramuscular venous malformation symptoms are similar to those of myofascial pain syndrome or muscle strain. The majority of venous malformation instances have a localized lesion involving one or more muscles. We discovered a comparable case of this type of malformation.

Myofascial pain syndrome and muscle strain are two conditions that have symptoms that are comparable to those of intramuscular venous malformation. The vast majority of patients diagnosed with venous malformation have a localized lesion that affects one or more muscles. We found another patient who had a similar case of this kind of deformity.

Keywords- Venous malformation, Myofascial pain, vascular malformation, Musculo- Skeletal Pain, Rehabilitation.

INTRODUCTION

Vascular malformations are common congenital lesions due to the embryonic progression of vascular structures¹ There are four types of malformations: arterio-venous, capillary, venous, lymphatic, and combined². In all of these Venous malformations are most common in the skin and subcutaneous tissues. Changes in skin pigmentation, localised edema, or discomfort are diagnostic of typical venous malformations³. However, venous malformation in the skeletal muscles may be missed since the affected locations are inconspicuous and the condition is uncommon. In addition, intramuscular venous malformation symptoms coincide with myofascial pain syndrome and muscle strain symptoms. Doppler Ultrasonography is a easy, painless and noninvasive, readily available, and quick method of investigating vascular lesions in patients, and it can assist confirming the diagnosis of VM when it reveals a specific flow pattern⁴. We will discuss a rare and extensive intramuscular venous malformation as a case report and a review of cases.

A 28-year-old male from Bihar, India, presented with a history of pain and tightness below the left knee for 18 years. His complaint was pain aggravated on extending the left knee during exercise. The pain subsided after relaxing and resting. On general examination and on his lower limb examination, power, tone, reflexes, and sensation were normal. His overlying skin shows non-traumatic, non-erythematic with a normal local temperature. There was swelling and tenderness on the medial side of the upper 1/3rd of the left leg. The swelling was localised and non-pitting in nature with grade 2 tenderness. In blood investigations like hemogram, ESR, CRP, CK, and LDH were within normal limits. The patient was further evaluated with musculoskeletal ultrasonography of the affected leg, which demonstrated multiple tortuous dilated intramuscular vasculatures. In the Magnetic Resonance Imaging (MRI) report of engorged venous malformation, after that venography was done to confirm the diagnosis, which showed dilated venous malformation with connections to the normal vein. In view of the treatment discussed with the department of cardiothoracic surgery, it was decided to not perform the surgical resection and sclerotherapy to prevent muscle damage due to resection of the deeply penetrated abnormal vein. This This explains the benefits and losses of sclerotherapy and surgical resection of deep-penetrated malformed veins. The patient agreed to conservative treatment, which included avoiding stretching exercises, working patterns, and posture-positioning and putting a compression bandage on the

affected area. The patient was instructed to stay in treatment until a meaningful recovery occurs. The patient was lost for follow-up after six months of therapy.

Search strategy

We conducted a computerized search of the MEDLINE, PubMed, and Scopus databases using the terms "venous malformation," "myofascial pain," "vascular malformation," and "musculoskeletal." A total of five cases were chosen and compared.

MATERIAL AND METHOD

We looked up the words "venous malformation, myofascial pain, vascular malformation, and musculoskeletal disorders" in PubMed, EMBASE, and Google Scholar up to August 2022. We have a plethora of articles on the subject. I gathered all the information and sources and then looked for topics that were important to study. There were 98 articles among them. We went through the abstract and searched for a case report of venous malformation of skeletal muscles. Finally, only five articles were chosen, one of which was free, three of which were requested from the library, and one of which could not be gathered from sources.

DISCUSSION

Arteriovenous, capillary, venous, lymphatic, and mixed malformations are the several types of vascular malformations, which congenital lesions are caused by aberrant vascular structure development during embryonic development¹.

Intramuscular venous malformations are rare entities and are most often present in the head, neck, and extremities. They are well localised to a single muscle or adjacent muscle groups. The patient presented with a venous malformation confined to the left lower extremity. Intramuscular venous malformation has the potential to be missed because it is frequently asymptomatic during its early stages. Our patient presented with long-standing stiffness of the knee for which he had been symptomatically treated for the past 18 years in multiple centers. The investigation choice for intravascular venous malformation is Magnetic Resonance Venography. The patient was referred to the cardiothoracic vascular surgery department, but no intervention was carried out.

In other studies, there are various differences from our case report. Amin A et al reported a 35-year-old woman presented with a 1.5-centimeter painful venous ulcer. malformation of the right vastus lateralis muscle. This case was treated with a trial of cryotherapy ablation. After that, up to the 8-month follow-up appointment, the patient reported that they were pain-free and that their symptoms had not returned⁵. Jung HC et al said a healthy woman was presented with a one-year history of right proximal thigh pain and tightness. They did not undergo surgical excision or focal sclerotherapy due to the risk of muscle damage caused by resection of the deeply penetrated abnormal veins. This decision was made after consulting with the cardiothoracic surgery and radiology departments. She was advised not to do excessive stretching of her lower limbs and was prescribed 100 mg of aspirin per day to prevent deep vein thrombosis³. Murakami T et al, A woman who was 63 years old appeared with a subcutaneous tumour located in the right distal thigh. She was treated twice, first at local level for a surgical resection of a venous aneurysm, then at the authors' centre where a surgical complete resection was performed. Pain and gait disturbance improved after surgery, and she has not experienced a recurrence of the mass for the past 2 years⁷. Muchemwa FC et al presented a case of a woman who was 23 years old and had a big mass on her left upper arm that had been there for six years. She had also been experiencing excruciating pain in her fourth and fifth fingers on the same arm for the previous three months. She went for surgical removal, improved postoperatively, and 10 months later was free of symptoms. ⁸. Comparable radiological findings and details of the investigation are kept in table no. 2.

CONCLUSION

Our study and one more show that conservative treatment is helpful. But other studies treat the same kinds of cases differently. If all treatments give almost the same result, we can proceed to conservative treatment.

Conflict of Interest – There is no conflict of interest.

Ethical approval - This is not a research study.

Consent - We obtained informed consent from the patient.

Financial Support – No financial support from government and private funding agencies.

REFERENCES

1. Mulliken JB, Glowacki J. Hemangiomas and vascular malformations in infants and children: a classification based on endothelial characteristics. *Plast Reconstr Surg.* 1982;69:412–422
2. Trop I, Dubois J, Guibaud L, Grignon A, Patriquin H, McCuaig C, Garel LA. Soft-tissue venous malformations in pediatric and young adult patients: diagnosis with Doppler US. *Radiology.* 1999;212:841–845.
3. Chul JH, Kim DH, Park BK, Park MK. Extensive Intramuscular Venous Malformation in the Lower Extremity. *Ann Rehabil Med.*2012; 36 (6): 893- 6.
4. Trop I, Dubois J, Guibaud L et al. Soft tissue venous malformation in pediatric and young adult patients: diagnosis with Doppler US. *Radiology.*1999;212:
5. Amin A, Tu J, Salsamendi JT. A Venous Malformation in the Vastus Lateralis: Our Experience with Cryotherapy. *Ann Vasc Surg.* 2018 Oct;52:315.e11-315.e13. doi: 10.1016/j.avsg.2018.04.009. Epub 2018 Jun 8.
6. Murakami T, Ogata D, Miyano K, Tsuchida T. An enlarged intramuscular venous malformation in the femoral region successfully treated with complete resection. *Int J Surg Case Rep.* 2016;21:83-6. doi: 10.1016/j.ijscr.2016.02.034. Epub 2016 Feb 27.
7. Muchemwa FC, Ishihara T, Matsushita S. Intramuscular venous malformation in the upper arm with gross calcifications and compression of the ulnar nerve. *Scand J Plast Reconstr Surg Hand Surg.* 2007;41(2):93-5.

FIGURES AND TABLES

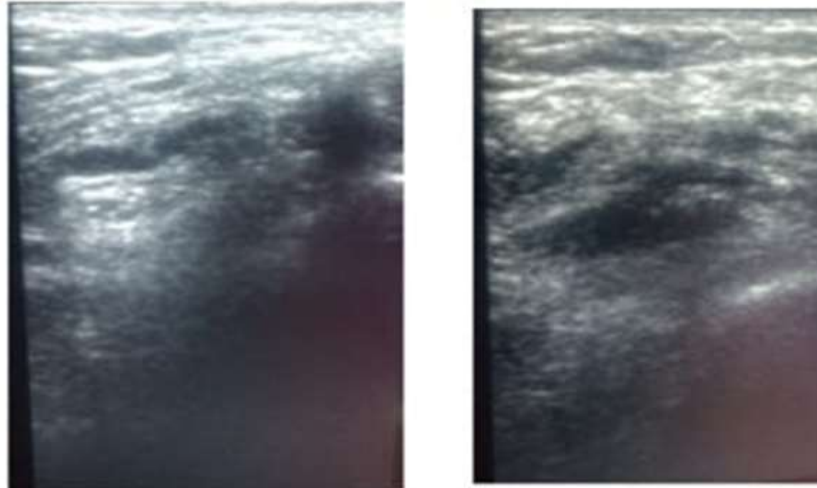


Fig - 1 USG- Multiple tortuous dilated intramuscular vasculatures

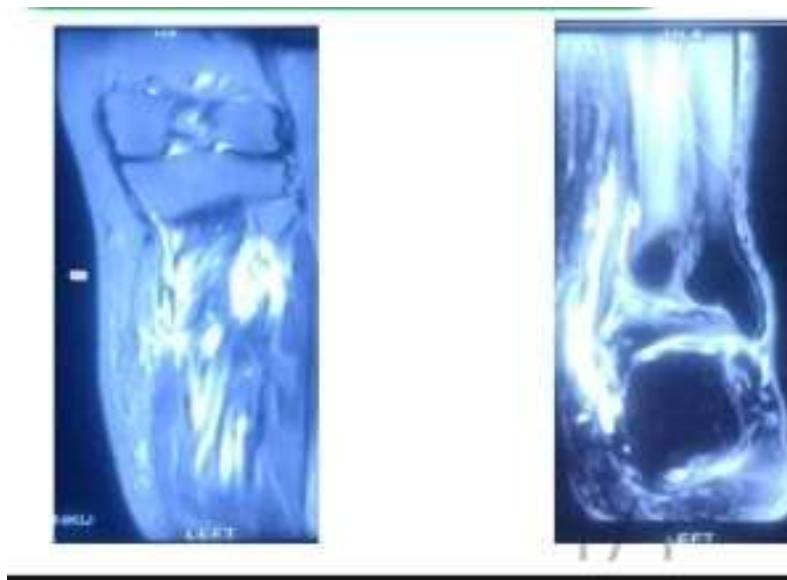


Fig - 2 MRI- Engorged venous malformation



Fig. 3 Doppler Venography - Dilated venous malformation with connections to the normal vein.

Table 1- Investigation Report of our Patient.

SL NO.		Referance Value	Result
1	Hemoglobin	13-16 gm/dl	14 gm/dl
2	ESR	0-22 mm /hr	20 mm/hr
3	CRP	Less than 10 mg/dl	5 mg/L
4	CK	55-170Units/L	80 Units/L
5	LDH	105-333IU/L	120IU/L
6	MSK USG		multiple tortuous dilated intramuscular vasculatures
7	MRI		Engorged Venous malformation
8	VENOGRAPHY		Dilated venous malformation with connections to the normal vein.

Table- 2- Reported case review with our patient.

SL NO.	References	MSK USG	VENOGRAPHY	MRI
1	Amin A et al	NA	NA	NA
2	Jung HC et al	dilated intramuscular veins in the right medial thigh and calf,	Angiography and venography showed multiple dilated venous malformations with connection to the normal veins and no connection to the arterial system	leg revealed multiple engorged tortuous venous structures mainly involving hamstrings, the vastus medialis, the soleus, and medial head of the gastrocnemius
3	Murakami T et al	NA	presence of an irregular vessel assumed to be the feeding vessel, which was dendritically branched from the deep femoral artery	intramuscular solid mass with an irregular intensity structure
4	Muchemwa FC et al	hypoechoic tissue in the induration.	NA	multiple areas with no signal within a large hyperintense lesion in the biceps brachii.
5	Our case	multiple tortuous dilated intramuscular vasculatures	dilated venous malformation with connections to the normal vein.	engorged venous malformation