CASE REPORT OLGU SUNUMU

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Venous Malformation in the Hand: A Rare Case Treated with Surgical Excision

Elde Görülen Venöz Malformasyonu: Cerrahi Eksizyon ile Tedavi Edilen Nadir Bir Olgu

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ABSTRACT Venous malformations are common congenital vascular anomalies that can occur in various body parts, presenting with symptoms such as pain, swelling, and functional limitations. Diagnosis is primarily based on clinical history, physical examination, and imaging techniques such as magnetic resonance imaging and ultrasonography. Treatment options include sclerotherapy, cryoablation, medication, and surgical excision. A 27-year-old male with a symptomatic venous malformation in the left hand underwent surgical excision after imaging confirmed abnormal venous structures. The surgery, conducted through small incisions, resulted in complete removal of the venous malformations with minimal complications. Postoperative recovery was swift, and the patient experienced significant pain relief and improved quality of life. Surgical excision is particularly beneficial for localized, symptomatic venous malformations and offers a reliable, low-complication solution compared to sclerotherapy. A multidisciplinary approach is essential for determining the most appropriate treatment strategy based on the lesion's size, location, and patient symptoms.

Keywords: Vascular anomaly; venous malformation; surgical excision; hand; hand surgery

ÖZET Venöz malformasyonlar, vücudun çeşitli bölgelerinde görülebilen, yaygın doğuştan gelen damar anormallikleridir ve ağrı, şişlik, fonksiyonel sınırlamalar gibi semptomlarla kendini gösterir. Tanı, öncelikle klinik öykü, fizik muayene ve manyetik rezonans görüntüleme ile ultrasonografi gibi görüntüleme yöntemlerine dayanır. Tedavi seçenekleri arasında skleroterapi, kriyoablasyon, ilaç tedavisi ve cerrahi eksizyon yer alır. Sol elinde semptomatik venöz malformasyonu olan 27 yaşında bir erkek hasta, görüntüleme sonuçlarıyla anormal venöz yapılar doğrulandıktan sonra cerrahi eksizyon için yönlendirilmiştir. Küçük kesilerle yapılan cerrahi müdahale sonucunda venöz malformasyonlar tamamen çıkarılmış ve komplikasyon minimum seviyede olmuştur. Postoperatif iyileşme hızlı bir şekilde gerçekleşmiş, hasta önemli ölçüde ağrıdan kurtulmuş ve yaşam kalitesi artmıştır. Cerrahi eksizyon, özellikle lokalize, semptomatik venöz malformasyonlar için skleroterapiye kıyasla güvenilir, düşük komplikasyonlu bir çözüm sunar. Tedavi stratejisinin belirlenmesinde, lezyonun boyutu, konumu ve hastanın semptomları göz önünde bulundurularak multidisipliner bir yaklaşım önemlidir.

Anahtar Kelimeler: Vasküler anomali; venöz malformasyon; cerrahi eksizyon; el; el cerrahisi

Congenital venous malformations are localized and frequent abnormal venous structures.[1] Venous malformations consist of mitotically inactive smooth muscle cells with weak wall structure.[2] Venous malformations may be superficial, localized to the dermis and subcutaneous tissues, or they may be deep, extending to muscle and bone. Pain is the most common symptom in venous malformations. This may result from the adhesion of abnormal venous structures to muscles, nerves, or joints, or from localized compression. Venous stasis within the malformed structures may also lead to obstruction, thrombosis, and phlebolith formation (calcified thrombi).[3] Venous malformations are included in the single type of ves-

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sel classification according to the 1996 Vascular Anomaly (International Society for the Study of Vascular Anomalies) classification, and are in the slow-flow vascular anomaly group in the classification according to Mulliken and Glowacky (Table 1).[4] Doppler ultrasonography (USG), magnetic resonance imaging (MRI), and venography can be used to evaluate lesion size. Phleboliths are pathognomonic for venous malformations.[5] For small superficial venous malformations, no further diagnostic tools are needed. Deep and large venous malformations are evaluated with MRI and USG to confirm the diagnosis, determine the size of the malformation, and plan treatment.[6] In 90% of venous malformations, the diagnosis is made by history and physical examination.[7,8]

In the treatment of venous malformation, a multidisciplinary approach should take into account the location of the malformation, the size of the lesion, and most importantly, the patient's symptoms. The primary goal of treatment is not to eliminate the lesion but to alleviate the symptoms.[9] Treatment options include sclerotherapy, cryoablation, medication, laser photocoagulation, and open surgical excision. Surgical excision of venous malformed structures below 2-4 cm is preferred to sclerotherapy because it is easily accessible, does not pose a life-threatening risk, and has nearly 100% recovery results.

CASE REPORT

A 27 years old male patient presented with a venous malformation in his left hand that had been symptomatic for the past 2-3 years. He applied to the orthopedics clinic with complaints of pain radiating to the fingers and limitation of movement, and our cardiovascular surgery clinic was consulted. In the physical examination, there were enlarged venous structures on the left hand and the appearance of a hard mass on the finger (Figure 1). The patient was requested for a superficial USG of the left upper extremity, and an increase in the thickness of the soft tissue on the dorsal side of the proximal phalanx of the 1st finger of the left hand was observed. It was reported that there are venous structures extending between the metacarpaphalangeal joints of the 2nd and 3rd fingers of the left hand and that there is an appearance compatible with venous malformation. There was also a 3 mm effusion under the skin on the dorsal surface of the 3rd finger at the proximal interphalangeal joint level. As a result of contrast-enhanced MRI of the left hand, abnormal venous structures and mass appearance were detected, and surgery was recommended because the patient was symptomatic and affected the quality of life (Figure 2A, Figure 2B). The patient who accepted the surgery was operated in collaboration with orthopedics and cardiovascular surgeons.

With the patient in the supine position, after axillary nerve blockade and sedation, and sterile painting and draping, small incisions were made on the left hand where abnormal venous structures were detected. Abnormal venous structures in the metacarpal region of the hand dorsum and the proximal interphalangeal region of the 3rd finger were excised, and

TABLE 1: International Society for the Study of Vascular Anomalies classification[4]

Vascular Anomalies				
			Vascular Malformations	
Vascular Tumors	Simple	Combined	of Major Named Vessels	Associated with Other Anomalies
Benign	Capillary malformations			
Locally aggressive or	Lymphatic malformationd			
Borderline	Venous malformations	defined as two or more vascular	abnormalities in the origin/course/number	syndromes in which vascular
		malformations found in one lesion	of major blood vessels	malformations are complicated by
			that have anatomical names	symptoms other than vascular anomalies
Malignant	Arteriovenous malformations*			
	Arteriovenous fistula*			

* High-flow lesions

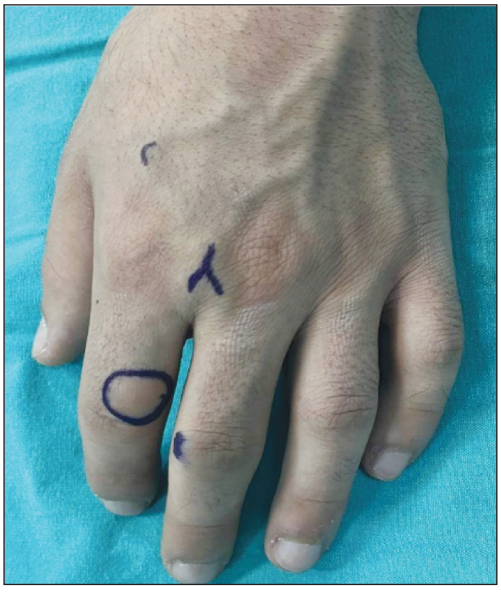

FIGURE 1: Enlarged venous structures and a hard mass on the dorsal aspect of the 2nd and 3rd fingers of left hand

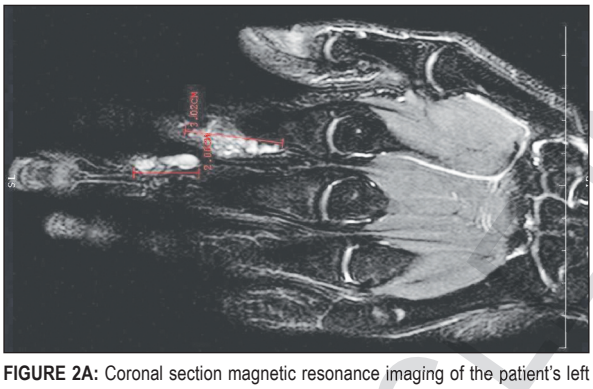

FIGURE 2A: Coronal section magnetic resonance imaging of the patient's left hand, showing the malformed venous structures in the 2nd and 3rd finger

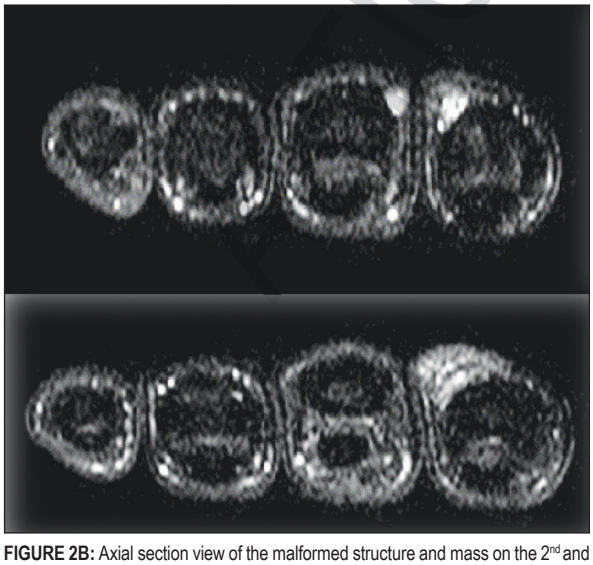

FIGURE 2B: Axial section view of the malformed structure and mass on the 2nd and 3rd fingers in contrast-enhanced magnetic resonance imaging of the left hand

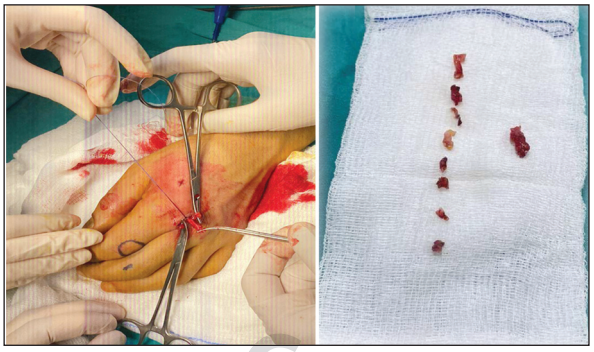

FIGURE 3: A) Intraoperative view of the surgical excision, showing the removal of malformed venous structures from the metacarpal region and proximal interphalangeal area; **B)** Materials recovered from the case

the hard mass-like lesion on the dorsum of the 2nd finger was removed with a small incision (Figure 3A). The extracted materials were sent to pathology (Figure 3B). Four mini incisions on the patient's hand and fingers were closed with primary sutures in accordance with the procedure. The patient was transferred to the cardiovascular surgery service. The patient was discharged with full recovery after a 1-day hospital stay. At the patient's check-up a week later, the stitches were removed and the wound was clean and healed. The patient's pain has disappeared and his quality of life has improved. Our patient benefited from the operation.

An informed consent form was obtained from the patient for the use of his data in the case report.

DISCUSSION

Although sclerotherapy is a primary and widely used treatment method for venous malformations, it has limitations in some cases. Sclerotherapy is generally preferred as an alternative option to surgery or to reduce the size of the lesion before surgery.[10] Although this method significantly improves the general quality of life of patients by alleviating the severity of pain, contour deformity and skin discoloration, it is not always sufficient to fully control the lesion.[11] Considering the size of the lesion, its location and the patient's preferences, surgical treatment becomes a priority option in cases where sclerotherapy is not suitable, especially in cases where the lesion can be completely removed with low morbidity. Especially in large, deep or symptomatic lesions, surgical exci-

sion offers a more effective and permanent solution compared to sclerotherapy. While sclerotherapy is often the first line treatment for venous malformations, surgical excision is preferred in cases with symptomatic, localized lesions that significantly impair quality of life. Surgical excision continues to be an effective and reliable treatment method for venous malformations because of its low complication rate and high patient satisfaction.

A patient-based approach should be adopted in the treatment of venous malformations, taking into account the size, location and symptoms of the lesion. Especially in small and painful lesions or in cases where total excision is possible, surgical excision offers a more effective and reliable option compared to other treatment methods. Surgical excision method attracts attention with its low complication rate and high patient satisfaction. In the diagnostic process, MRI and USG are used as important tools that direct the anatomical features of the lesions and surgical planning. These imaging methods enable accurate diagnosis and more effective management of the treatment process.

As a result, surgical excision stands out in the treatment of venous malformations by providing more long-term and successful results compared to methods such as sclerotherapy in appropriate cases.[12] Therefore, a multidisciplinary approach should be adopted in determining the treatment strategy and each patient should be evaluated individually.

Source of Finance

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Sevda Kurtulmuş;* ***Design:*** *Hüseyin Selçuk;* ***Control/Supervision:*** *Sevda Kurtulmuş;* ***Data Collection and/or Processing:*** *Hakan Baltacı;* ***Analysis and/or Interpretation:*** *Sevda Kurtulmuş;* ***Literature Review:*** *Hakan Baltacı;* ***Writing the Article:*** *Sevda Kurtulmuş;* ***Critical Review:*** *Hüseyin Selçuk;* ***References and Fundings:*** *Hüseyin Selçuk;* ***Materials:*** *Sevda Kurtulmuş.*

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