A RARE CASE OF ARTERIOVENOUS MALFORMATION IN THE LOWER LIMB

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ABSTRACT

Aim of the study: To report a case of massive enlargement of left lower limb due to diffuse microscopic arteriovenous malformation.

Place of Study: A seventeen old girl from, Mysore, Karnataka, India.

Period of Study: During the month of June - July 2014. Case Report: A 17 year old female came with history of diffuse swelling of left leg and foot and skin bluish discoloration of the lateral aspect of left thigh, since birth. The lateral 4 toes of left foot are enlarged having circumference of 5 to 6cm. The middle toe was much longer than other toes. The big toe was smaller in size. Patient has pain while walking and subsides on taking rest. She was the only child born to non consanguineous couple. There was no history of filariasis in the family. Observations: On examination there was generalized massive swelling of the left leg, left foot and lateral four toes in left foot. Big toe is not involved. There was bluish discoloration of the skin on the lateral aspect of left thigh. Discussion: The present study was correlated and well compared with available literature. Conclusion: This is a case of arteriovenous malformation which has given rise to all the above signs and symptoms.

Keywords: Arteriovenous malformation, lymphoedema, deep venous system, dilated veins.

INTRODUCTION

As per Plasencia et al arteriovenous malformations are abnormal connections between arteries and veins leading to arteriovenous shunting with an intervening network of vessels called nidus [1]. One or more feeding arteries, a nidus, and one or more draining veins form arteriovenous malformation. The bulk of arteriovenous malformation is formed by nidus. The nidus consists of cluster of entangled venous loops [2]. They do not have capillary bed and small caliber arteries do not have muscularis. The fistulas that are formed have high
blood flow, arteriovenous shunting which is very rapid resulting in hypotension in the feeding vessels. The etiology of arteriovenous malformation may be due to developmental defect at embryonic stage of development of blood vessels, at foetal stage, or after birth [3]. Arteriovenous shunting occurs in central nidus. Multiple feeding arteries converge towards nidus. Enlarged veins drain from the nidus. Arteriovenous fistulas are different from the arteriovenous malformations by the presence of high blood flow fistula between one artery and vein [4]. The common sites of arteriovenous malformation are brain, lungs, pelvis, and thigh [5].

**Case Report**

**Clinical History**

A 17 year old female, from Mysore, India complained of massive enlargement of left leg, left foot, lateral 4 toes of left foot, since birth. There was bluish discolouration of skin over the lateral aspect of left thigh. This patient complained of pain while walking and standing but relieved on taking rest. But there was tenderness of the swelling. Consent has been taken from her father to examine the patient.

**General examination**

Moderately built and nourished.
No cyanosis, clubbing, jaundice and lymphadenopathy.
Cardiovascular system and respiratory system - normal.
Abdomen - No organomegaly, no hernias.
Central Nervous System - normal.
Spine - normal.

**Local Examination**

There was swelling of left leg, left foot, lateral 4 toes of left foot, bluish discolouration of skin on lateral aspect of left thigh. There were multiple scaly papules measuring ½ cm x ½ cm over the left knee. There was a scar of previous fall over the left knee. There was a swelling on the distal part of the dorsum of left foot which was soft and painful. No bruit heard over the swelling. No palpable thrill. Both upper limbs were normal.

**Investigations**

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<tbody>
<tr>
<td><strong>Haemoglobin</strong></td>
<td>9.7gms%</td>
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<tr>
<td><strong>Serum Creatinine</strong></td>
<td>0.6mg%</td>
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<tr>
<td><strong>Urine</strong></td>
<td></td>
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<tr>
<td>Colour</td>
<td>pale yellow</td>
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<tr>
<td>pH</td>
<td>6.0</td>
</tr>
</tbody>
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### Final Diagnosis

Diffuse microscopic arteriovenous malformations of left leg and foot.

### Course of Treatment

Since she has arteriovenous malformation of left lower limb, her condition is said to be inoperable. She has been advised to wear compressed elastic crepe bandage in order to

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
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<tbody>
<tr>
<td>Pus cells</td>
<td>occasional</td>
</tr>
<tr>
<td>RBCs</td>
<td>Occasional</td>
</tr>
<tr>
<td>Epithelial cells</td>
<td>2-4</td>
</tr>
<tr>
<td>Crystals</td>
<td>Calcium oxalate</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.030</td>
</tr>
<tr>
<td>HIV</td>
<td>Negative</td>
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<tr>
<td>HB sAg</td>
<td>Negative</td>
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<tr>
<td>Limb Angiogram</td>
<td>Normal study of the left limb arteries</td>
</tr>
<tr>
<td>MRI</td>
<td>Enlarged left lower limb with grossly increased diffuse subcutaneous fat thickness with stranding – lymphoedema. Dilated large veins in the subcutaneous plane intermuscular calfplexus - suggestive of anomalous veins.</td>
</tr>
<tr>
<td>Bilateral Lower limb Doppler Sonography</td>
<td>Arteriovenous Malformation(AVM) involving deep femoral vessels of left lower limb</td>
</tr>
</tbody>
</table>
prevent pain and advised to come for follow up in vascular surgery department in the above hospital.

**DISCUSSION**

Kunze et al (2009) has reported a rare case of arteriovenous malformation in the foot in 8 years old boy with progressive history of pain in the left lower limb along with localized swelling increasing on weight bearing in 2008. There was no history of trauma. On clinical examination, there was soft tissue swelling in the plantar region. There was paraesthesia and hypersensitivity. MRI was done that shows vascular malformation with high uptake of contrast medium, which was spread intrafascicularly, intramuscularly, subcutaneously [6]. Arteriovenous malformation was seen in a ten years old boy in the right lower limb for 8 years. He was on sclerotherapy treatment for the previous 4 years. Later, there was disturbance in gait due to length discrepancy. So treatment was stopped since there was no improvement on treatment. On clinical examination, he had arteriovenous malformation and hypertrophy of soft tissue in right lower limb. Chest X-ray showed cardiomegaly with increased pulmonary vascularity. ECG showed normal cardiac rhythm. 2D echocardiogram showed right atrial hypertrophy, right and left ventricular hypertrophy, enlargement of pulmonary artery but there was no pulmonary oedema. There was conspicuous enlargement of pelvic veins and inferior vena cava. Right hip disarticulation was done to prevent cardiac failure and haemorrhage [7]. Arteriovenous malformation has direct connections between artery and vein with bypass of the capillary bed. They are high flow lesions [8]. Arteriovenous fistula is abnormal communication between arterial and venous systems. This is a congenital venous malformation. Ali et al presented a case of complicated congenital arteriovenous malformations of left lower limb in a 23 years old female. There was history of two times unsuccessful coil embolization attempts. Later she underwent successful surgery where all the thrombosed veins and varicosity of vein was excised surgically. So the surgery is effective method of treatment for congenital arteriovenous malformations, particularly the lower limbs [9].

**Present Study**

In the present study, arteriovenous malformation was studied in a female aged 17 years. This swelling was present since birth in left leg and left foot. The swelling was present on the dorsum of foot along with discoloration of skin. The lateral 4 toes were enlarged to unusual size and the 3rd toe was much lengthier than other toes. The movement of toes was restricted.
Carry Home Message

This congenital anomaly of arteriovenous malformation that has occurred in left lower limb is rare. This anomaly has caused physical disability to the subject which is coming in the way of her normal activities. So assurance has to be given to such patients to lead normal life.

REFERENCES


