A great saphenous vein aneurysm in a child: A rare disorder misdiagnosed as an inguinal hernia

Naoko Komatsuzakia,b,*, Naoki Hashizumeb, Yoshio Watanabea, Hidemi Takasu, Wataru Sumida, Kazuo Oshima, Minoru Yagit

a Department of Pediatric Surgery, Aichi Children’s Health and Medical Center, 7-426, Morioka-cho, Obu, Aichi 474-8710, Japan
b Department of Pediatric Surgery, Kurume University School of Medicine, Fukuoka, Japan

Article info
Article history: Received 17 February 2016 Received in revised form 1 March 2016 Accepted 1 March 2016

Key words: Great saphenous vein aneurism Vascular malformation Inguinal hernia

ABSTRACT

We report a case of primary great saphenous vein aneurysm (GSVA) in a 3 years old girl. A growing mass at the right groin region had been detected in the upright position during the last two years, which was misdiagnosed as inguinal hernia at the referral hospital. The Doppler ultrasound scanning (DUS) showed the findings of GSVA such as the 2 cm soft cystic mass from the great saphenous vein accompanying with the turbulence flow, whereas with no vein thrombosis. GSVA was resected after the ligation of the distal part of the great saphena vein. There was no sign of the recurrence in 1-year follow up at the outpatient examination. Primary GSVAs are rare lesion and were often misdiagnosed and confused as soft tissue tumor or inguinal hernia (J.S. de Miranda et al., 2015; G.A. Ranero-Juárez et al., 2005). As the diagnostic imaging for GSVAs, DUS is therefore effective in detecting the aneurysms and the presence of a thrombus.

Venous aneurysms are defined as a solitary area of venous dilatation, not associated with hemangiomas, arteriovenous communication or pseudoaneurysms. Primary great saphenous vein aneurysms (GSVA) are rare lesion and be difficult to diagnosis, which often be misdiagnosed as soft tissue mass or as inguinal hernia [1,2]. We report a case of a primary great saphenous vein aneurysm in a girl.

1. Case report

A 3-year-old girl was admitted to our hospital with a growing mass in the right groin region that had been present for two years. The mass was misdiagnosed as an inguinal hernia at the referring hospital (Fig. 1). The mass increased in size during straining and returned to the normal size in the supine position. The left groin region was absolutely normal. There was no history of trauma, infection and inflammatory disease. Doppler ultrasound scanning (DUS) showed a soft cystic mass of 2 cm in size extending from the great saphenous vein accompanied by turbulent flow. Thrombosis was not observed (Fig. 2). Magnetic resonance angiography with the patient in the supine position did not show similar findings. Based on several characteristics that were observed in the clinical examination of the growing mass, a great saphenous vein aneurysm (GSVA) was suggested.

Exploratory surgery was performed. A 2-cm incision was made at the site of the saphenofemoral junction. The mass, an aneurysm of the great saphenous vein was located approximately 5 mm from the femoral vein. The aneurysm was resected after the ligation of the distal part of the great saphenous vein (Fig. 3). A histopathological examination revealed the thickening of the focal intimal and medial layers with areas of fibroplasia (Fig. 4).

Her postoperative course was uneventful and there was no sign of the recurrence in the 1-year follow-up period.

2. Discussion

Venous aneurysms occur in every part of the body regardless of age and gender [3]. Primary venous aneurysms are generally congenital and develop from defective venous tissue. This disorder occurs in young patients, often in association with Klippel–Trenaunay syndrome, which is known to be accompanied by a high incidence of thromboembolism [4]. On the other hand, secondary or acquired venous aneurysms are usually observed in adult patients and are associated with trauma, inflammation, connective tissue deformation and degenerative changes. The young child in
the present case did not have any of the characteristic findings of Klippel–Trenaunay syndrome, thus the exact cause of her GSVAs is unknown.

GSVAs are classified into 4 types based on their location [5]: Type I (52%) aneurysms are located at the proximal third of the saphenous vein, but not at the saphenofemoral junction, Type II (35%) aneurysms are located in the shaft of the saphenous vein in the distal third of the thigh, Type III (7%) aneurysms include superficial saphenous vein aneurysms in the same locations as types I and II, Type IV (6%) include superficial venous aneurysms of the short saphenous system. Superficial venous aneurysms such as type III and IV are associated with saphenous vein reflux in both males and females, whereas the lower-limb or deep system aneurysms are have been associated with deep venous thromboses and pulmonary embolisms [6,7]. The present case was classified as type IV.

MRI and enhanced computed tomography are not effective in detecting GSVAs because they are performed with the patient in the supine position. In the supine position, GSVAs shrink in size, which makes them difficult to detect. In contrast, DUS can be performed with the patient in the upright position. It is therefore effective in detecting the aneurysms and the presence of thrombi [8]. Several surgical procedures for GSVAs have been reported; the procedures vary according to the location. These include: the ligation of the vessel around GSVAs, venorrhaphy, resection with a vein graft and tangential aneurysmectomy with lateral venorrhaphy [3]. The appropriate surgical approach is determined based on the location of the aneurysm. Aneurysm resection with venorrhaphy has been associated with the subsequent early occlusion of the

![Fig. 1. The clinical presentation of the growing mass in the right groin region.](image1)

![Fig. 2. Doppler ultrasound scans showing a 2-cm cystic mass extending from the great saphenous vein with turbulent flow.](image2)

![Fig. 3. The intraoperative findings revealed a great saphenous vein aneurysm in the area of the right saphenofemoral junction.](image3)

![Fig. 4. The histopathological findings revealed focal intimal and media layer thickening with areas of fibroplasia.](image4)
surgically-shaped vessel. Aneurysm resection with the simple ligation of the vessel may therefore be preferable [1]. In the case of superficial aneurysms such as the present case, vessel reconstruction is not usually required. The latter procedure was therefore selected for the treatment of the present case.

In conclusion, we herein presented a rare case of a type IV GSVA in a 3-year-old girl. GSVAs are often misdiagnosed as soft tissue tumors or inguinal hernias. DUS is effective in detecting aneurysms and thrombi in patients with GSVAs.

Funding source

There are no funding sources to report in association with study.

Financial disclosure statement

The authors declare no relevant financial relationships in association with this study.

Conflict of interest

The authors declare no conflicts of interest in association with this study.

References