**Case Report:**

**TRUNK AND RETICULAR VARICOSE ON A 9-YEAR-OLD CHILD**

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**ABSTRACT**

Varicose veins are enlarged veins close to the skin’s surface where the diameter are more than 2 mm measured in the upright position. These are involve saphenous veins, saphenous tributaries, or nonsaphenous superficial leg veins. Varicose veins usually are tortuous, but tubular saphenous veins with demonstrated reflux may be classified as varicose veins. Varicose veins in children is very rare case. To report a successful surgical treatment of 9 years old boy suffered from varicose vein in his left leg. A case of 9 years old boy who was admitted with aching pain and easy leg fatigue. Physical examination showed that there was superficial venous ectasies and tortuous. We performed babcock excision in these patients. Surgical treatment still gave a good outcome in the children whom suffered from truncal and reticular varicose vein grade III. (FMI 2014;50:114-118)

**Keywords:** Varicose vein, surgery, babcock excision

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**INTRODUCTION**

Based on the 5th annual consensus held by The American Venous Forum, in the year 1993, chronic vein diseases were classified with the basics: Clinical manifestation, Etiologic factors, Anatomic distribution of disease, and underlying Pathophysiological finding or often abbreviated into CEAP. The definition of leg varicose based on the classification of CEAP is a subcutaneous vein that becomes dilated (diameter ≥ 3 cm) examined at a standing position and turning. Varicose only convers great saphenous vein, reticular vein, as well as superficial non-saphenous vein.

The incident of varicose usually occurs on 40-60% women and only 15-30% for men. A child’s Incident is very rare. Most etiologic varicose act primarily and the rest acts secondarily, mostly caused by a Deep Vein Thrombosis; Pelvic Vein obstruction due to tumor; or an incompetent deep vein. To handle legs varicose, non-Surgery and surgery options are available. The objective of the case report is to report and explain varicose cases to children.

**CASE REPORT**

A 9-year-old male came with a complaint of pain on the left leg when performing activities (especially when standing for a lengthy time or walking on a long distance). There is no family history of leg varicose. On the physical examination, venous dilation and curvaceous veins were found on the left leg (Figure 1 A&B). Upon testing using the Trendelenburg test, positive result was obtained. The patient was diagnosed with a Grade 3 left trunk and reticular varicose.
The patient underwent a Babcock excision operation of the left leg with a general anesthesia. Before the operation was performed, the mapping of the dilated and curvaceous veins was performed (see Figure 1A&B). The patient’s position was prone (see Figure 2), and the operation area was disinfected by povidone iodine 10%, afterwards a ± 5 mm incision (see Figure 3) above the varicose vein. After the varicose vein was found, the Babcock excision was performed. The surgical wound was closed using a single suture (see Figure 4).

For the post-operation treatment, an elastic bandage was placed from the proximal edges of the toes to the folding of the thighs. In the first 24 hours, the patient was not allowed to walk and the left leg was placed on an elevated position. After 48 hours, after some bandages were taken off and the wound has already healed, another bandage was placed and the patient could walk slowly, afterwards, the patient can go home with an elastic bandage that has to be worn for 2 weeks. A week after the surgery, the patient came back for a control for removing the suture.

DISCUSSION

Epidemiology

In developed countries, the number of incidents of leg varicose is very high, around 10 to 64 %. On the contrary, developing countries have lower incidents, around 1 to 10 %. The prevalence difference on different geography or environment is thought to be caused by one important factor, the difference between the amount of food with high fiber consumption. In developed countries, the low consumption of fiber causes a higher intra abdominal pressure when defecating (Welch & Raftery 2005). The leg varicose
incident occurs eight times more frequent on women than men. This is caused by hormonal factors, especially estrogen, which causes relaxation of the smooth muscle and collagen fibers that create venodilation (Bergan 2004, Welch & Raftery 2005). The rate of leg varicose on children is less compared to adults.

**Etiology**

Risk factors of leg varicose include (Welch & Raftery 2005) are venous wall weakness, incompetence of venous valves (superficial and perforator), arteriovenous gout, hormonal (estrogen), genetic, environment/diet, pregnancy, obesity, standing for too long, and oral contraception.

The incompetency of venous valve is one of the most important etiologic factors on the formation of trunk varicose, especially saphenofemoral valve where the incompetency of valve will cause a venous dilation and furthermore, create a varicose (Welch & Raftery 2005). Up until now, the major topic of discussion is what happens first: Is it the weakness of the venous wall or the incompetency of the valve? The answer is both. The weakness of the wall causes dilation followed by the failure if venous valve’s cusps close that creates are flux. On several patients, the cause of valve incompetency is primary. This condition can create a deep and superficial veins insufficiency. The weakness of venous wall can be secondary if it is caused by an imbalance between the collagen and elastine fibers on the smooth muscle of the venous wall. As a result, a decrease in contractility will occur. Progesterone can also inhibit the contraction of smooth muscles (Bergan 2004, Welch & Raftery 2005). Arteriovenous gout has a role in contributing to leg varicose. Arteriole flow acts as a hemodynamic factor that causes a weakness of the venous wall that creates vein dilation (Blumoff & Johnson 1977, Reikerås & Sørlie 1983), even though this is all speculative. The effects of hormones (estrogen) cause a relaxation of the smooth muscle and collagen fibers that also causes venodilation (Welch & Raftery 2005).

Cornu-Thenard et al (1994) performed a research that shows the genetic role of leg varicose. Their study result shows that if both parents suffer from varicose, their children will have a 90% chance of developing varicose. However if one of the parents are affected, the risk of developing varicose on a female child is 65 % and 25% on a male child. If both parents do not suffer from varicose, the risk of developing varicose on their children is around 20%. Low fiber diet is a risk factor of varicose due to the increase of intra abdominal pressure during defecation (Bergan 2004, Welch & Raftery 2005).

Pregnancy is another risk factor. Several opinions state that it is caused by: (1) uterine pressure that causes a disturbance in the backflow of the veins; (2) hormonal effects, progesterone that inhibits the uterine smooth muscle contraction and venous walls, as well as estrogen (Struckmann et al 1990, Sadick & Niedt 1990).

**Diagnostic and Symptom**

The severity of the clinical symptoms of leg varicose doesn’t correlate with size or how bad the varicose may seem to appear. Clinical symptoms that usually occur in association with leg varicose are: leg feels heavy, easily tired, and pain especially when standing or sitting. Other than that, the complains usually consist of: burning sensation, itch, muscle cramps at night (Bergan 2007) Other than that, several authors believe that the clinical Stages consist of: (a) Stage I: stiff, easily-tired.; (b) Stage II: vein ectasia; (c) Stage III: Massive varicose; (d) Stage IV: Ulcer or topical disorder. On this patient, we received a complaint of pain and easily tired when standing for too long, it is categorized as the third Stage.

Clinically, extension and the number of veins with disorders need to be differentiated. The classification of the area of the affected vein based on its size is needed to determine the therapy of choice. It can be determined based on these findings (Bergan 2007, Puruhito 1987). 1) Trunk varicose, if the affected vein is a major vein: (a) Great saphenous vein, including all of its courses; (b) Lesser saphenous vein; 2) reticular varicose, if the affected veins are branches of saphenous vein, generally small and greatly curvaceous, subcutaneous, and usually 1-3 mm in size; and 3) capillary varicose or telangiectasia, if the affected veins are subcutaneous capillary veins. They are visible as smooth fiber groups of the blood vessel and usually less than 1 mm in size.

Upon physical examination, without using any special equipment, clinicians are able to acquire information regarding venous blood flow from the leg, insufficient valve location, primary and secondary vein varicose location, also the existence of deep thrombotic vein. Screening through this physical examination consists of careful observation of the leg. Several patients with these following conditions are required to be examined thoroughly: large veins varicose; lump on the inguinal, femur, and crus region that represents an incompetency of perforated veins; signs of superficial veins hypertension, similar to a collection of telangiectasia on the heel (corona phlebectatica); or other clinical findings such as: venous dermatitis (pigmentation, exema, and induration). There also seems to be an ulceration of the vein, *atrophie blanche*, or lipodermatosclerosis (Bergan 2007).
Clinical tests that can be used include Trendelenburg test (to determine the degree of valve insufficiency on communicant veins), perthes test (to determine the functionality of the deep vein system), cough test, and Schwartz test (Bergan 2007, Puruhito 1987). The usage of supportive means like doppler and duplex scan on leg varicose disorder has a high specificity and sensitivity. In this patient, the diagnosis can be determined clinically by acquiring an evidence of trunk varicose (lesser saphenous vein) and Stage III reticular.

Therapy

Therapy of leg varicose includes two aspects: (1) Non-surgery and (2) surgery. The non-surgery therapy includes: (a) dressing; (b) topical agent; (c) physical therapy; (d) compression therapy; and (e) sclerotherapy. As for the surgery therapy covers: (a) stripping saphenous vein; (b) Venous ligation of Communicants veins; (c) multiple extraction from reticular vein; (d) ulcer excision and skin graft (if venous ulcer is found); and (e) endoluminal occlusion of saphenous vein with laser energy or radiofrequency (Puruhito 1987, Bradbury & Pappas 2006, Gloviczki 2005).

Indication of surgery of leg varicose include: (1) vein varicose correlated with significant clinical symptoms or evidence of complication that is conservatively unsuccessful; (2) performed as early as possible, when the communicant veins undergo insufficiency (Stage II-III), it helps the back blood flow. (3) on trunk and reticular varicose Stage III dan IV (Hands & Murphy 2007, Puruhito 1987). On our patient, surgery indication is the evidence of significant complaint of disturbing pain where conservative therapy failed.

When the decision to perform surgery is taken, some things have to be thought over, including: (1) Extraction of varicose with permanent hypertensive vein as the source; (2) Cosmetics; (3) Minimizing the amount of complications (Gloviczki 2005). The surgery options for leg varicose surgery therapy are a) Stripping of saphenous vein from the heel-inguinal (with stab avulsion); b)Stripping of segmental saphenous vein (with stab avulsion); c) Ligation of saphenous vein: high, low, or both; d) Ligation of saphenous vein and sclera therapy; e) Ligation of saphenous vein (with stab avulsion); f) Phlebectomy or multiple babcock extraction; g) Endoluminal occlusion of saphenous vein with laser energy or radiofrequency.

The final objective of the surgery therapy is to: (1) Axial hydrostatic ablation and saphenous vein reflux; and (2) removing the hydrodynamic force from perforating veins reflux (Gloviczki 2005). In this patient, multiple babcock extraction is done with considerations of: (1) branches of lesser saphenous veins are visible and palpable, therefore, it would be easy to perform the procedure; (2) Procedure tolerable for the patient; and (3) able to be combined with other modality therapy. It is better to perform supportive examination for the patient in the form of imaging using duplex ultrasonography to see the source of venous hypertension and the proximal point of the reflux. This is important to prevent recurrence.

Post-operative Treatment

Post-operative treatment of leg varicose patients that underwent a surgery therapy include: (1) The usage of 3 layers of compression bandages 10 minutes after the surgery, several authors advised that from the proximal edges of toes until the folding of the thigh (Almeida & Raines 2007); (2) For the first 24 hours, the patient is not allowed to walk and the legs are to be put on an elevated position (Puruhito 1987); (3) On the second day post-operation, the bandages can be opened and the wounds can be treated, afterwards the bandage is reattached or replaced with compression stocking until two weeks. The patient is allowed to walk slowly (Hands & Murphy 2007, Puruhito 1987, Almeida & Raines 2007); (4) Anti-inflammatory agent administration (Hands & Murphy 2007, Almeida & Raines 2007); (5) Prophylaxis antibiotic therapy for 3 days (Almeida & Raines 2007); and (6) evaluation using duplex ultrasonography to eliminate any possibilities of deep vein thrombosis. For children with this disorder, there is no special difference for the post-operative treatment.

Complication

Complication that can happen post-operation include: (a) hematoma; (b) wound infection; (c) nerve damage, including: saphenous nerve (± 6%), sural nerve (± 25%), common peroneal nerve (rare); (d) thread veins that generate cosmetic problems; (e) leakage of inguinal lymphatic gland; and (f) Deep Vein Thrombosis and lung emboli (DVT incident < 5 %).

REFERENCES

