

## Paget von Schroetter Syndrome Secondary to Exotic Dancing: A Case Study

Dale Maharaj, F.R.C.S., F.I.C.S., F.I.C.A., Michael Ramdass, M.B.B.S., Andrew Perry, M.B.B.S.,  
Vijay Naraynsingh, F.R.C.S., F.A.C.S.

Department of Surgery, University of the West Indies, General Hospital, Port-of-Spain, Trinidad, West Indies

**Abstract.** Axillary vein thrombosis, or Paget von Schroetter syndrome, is a rare clinical condition. It is associated with several thrombogenic states and numerous sporting activities involving excessive use of the arm. We report one such case associated with exotic dancing. In societies where dancing involves excessive arm movement, the physician must be aware of this condition to permit early diagnosis and effective treatment.

### Introduction

Upper limb vein occlusion was first described by Sir James Paget in 1858 [5]. He, however, incorrectly attributed the disorder to vasospasm. Forty-one years later, Leopold von Schroetter described a case of axillary vein thrombosis following physical exertion [11]. It was Hughes who recognized these pioneers and affixed the eponym “Paget von Schroetter” Syndrome to this condition and described 320 cases of this condition in his landmark paper [3]. In the 1960’s, the term “effort-thrombosis” was coined, implying a causal relationship between strenuous use of the arm or shoulder [2].

It is thought that Paget von Schroetter syndrome is precipitated by sporting activities involving repetitive use of the arm, causing microscopic intimal tearing of the venous wall. The stress of exercise also causes hypercoagulability, thereby fulfilling two criteria of Virchow’s Triad. Several sporting activities have been associated with axillary vein thrombosis, including ball games [4], racket games [1] and aquatic sports [10].

We describe one case of axillary vein thrombosis occurring in a young non-smoking male after about of dancing involving rigorous movement of the upper limb. In developing countries where Carnival is celebrated, the

physician must be aware of this condition and the causal link to dancing.

### Case Report

A 25-year-old male presented to the General Surgery service with a two-day history of swelling of the right upper limb. He claims that he woke up one morning with pain in the right axilla and swelling of the entire right upper limb.

Careful history-taking revealed no trauma or any features to suggest a hypercoagulopathic state. Further probing revealed that the entire night before the onset of symptoms was spent dancing. The dance involved rigorous waving of a piece of cloth in the air. This dance is indigenous to Trinidad and is called “wave your rag.”

Examination of the upper limb revealed significant non-pitting edema from the shoulder to the fingers, with a bluish discoloration especially when held dependent. Venous distension and engorgement was seen on the volar aspect of the hand and the forearm (Figure 1). Peripheral pulses were all easily palpable in the affected limb, and this was confirmed on Doppler assessment.

Doppler assessment of the arm revealed impaired phasic venous signals with respiration and absent signals in the axillary area.

A right upper limb venogram was performed, which demonstrated a filling defect within the lumen of the axillary vein with complete occlusion at that point (Figure 2). The more proximal axillary vein filled via collaterals around the shoulder region.

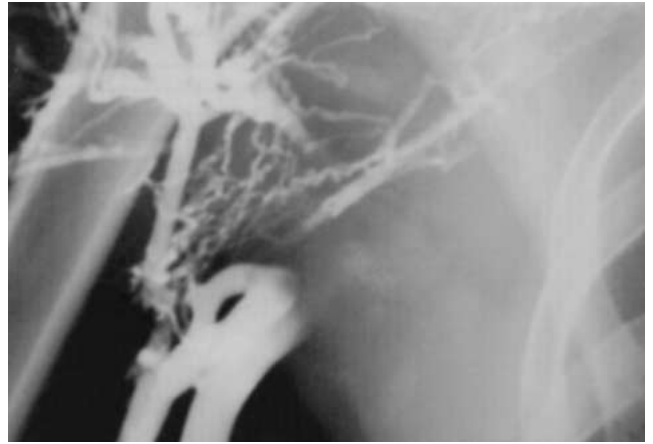
The patient was anticoagulated and offered intravenous thrombolysis. He absconded from clinic despite counseling.

### Discussion

Upper limb venous thrombosis is an uncommon condition. The dominant arm is usually affected [12].



**Fig. 1.** Edema of the right upper limb when compared to the left. Distended tortuous veins are seen in the arm.



**Fig. 2.** Venogram demonstrating an intraluminal lesion in the right axillary vein with absent filling just proximal to this. Distended collateral veins are also demonstrated.

Several thrombogenic etiologic factors have been implicated, including hereditary defects in coagulation such as factor V Leiden mutations and prothrombin 20210A [9].

Several cases, however, are associated solely with excessive arm movement. Such physical activity may involve hyperabduction which leads to venous intimal tearing. The stress of exercise compounds the thrombogenic effect of intimal injury and can therefore lead to intraluminal clot formation and development of Paget von Schroetter syndrome.

Numerous sporting activities have been associated with axillary vein thrombosis. Ball sports, such as football, have been implicated. Several sporting activities involving abduction and rotation at the shoulder joint have been reported, including wrestling [13] and gymnastics [8].

We have described several conditions associated with erotic dancing, including paraphimosis [6] and fractures of the tibia and fibula [7]. This is the first reported case of axillary vein thrombosis due to this rigorous form of dancing. It would appear that such forms of dancing are associated with hyperabduction of the arm, accompanied by external rotation. This, therefore, meets the criteria for thrombosis: intimal injury and increased blood viscosity.

In the Caribbean and Latin American countries, such activities form a routine part of the culture. Physicians working in these territories must keep the existence of this rare condition in mind, and, furthermore, be aware of the association between axillary vein thrombosis and dancing. This will allow for early diagnosis and expedient treatment, therefore reducing the incidence of post-thrombotic sequelae.

## References

1. Adams JT, McEvoy R, DeWeese JA (1965) Primary deep vein thrombosis of upper extremity. *Arch Surg* 91:29–42.
2. Gorard DA (1990) Effort thrombosis in an American football player. *Br J Sports Med* 24:15.
3. Hughes ESR (1949) Venous obstruction in the upper extremity (Paget-Schrotter's syndrome). A review of 320 cases. *Int Abst Surg* 88:89–127.
4. Kleinsasser LJ (1949) Effort thrombosis of the axillary and subclavian veins. An analysis of sixteen personal cases and fifty-six from the literature. *Arch Surg* 59:258–274.
5. Paget J (1858) Practice among the out-patients of St. Bartholomew's Hospital. No III. On some affections of voluntary muscles. *Medical Times Gazette* 16:260–261.
6. Ramdass M, Naraynsingh V, Kuruvilla T, Maharaj D (2000) Paraphimosis due to erotic dancing. *Tropical Medicine and International Health* 5:906–907.
7. Ramdass M, Naraynsingh V, Maharaj D (2001) Fractured Tibia and Fibula due to erotic dancing. *Internet J Orthoped Surg Vol 1: Issue 1*.
8. Roelsen E (1944) Primary thrombosis of the axillary vein. Seven verified cases of thrombus formation. *Acta Chir Scand* 90:547–567.
9. Sainalp N, Ozcebe O, Kirazli S, Dogan R, Dundar SV, Gurgey A (1999) Paget-Schroetter Syndrome associated with FV: Q and Prothrombin 20210A. *Angiology* 50:689–692.
10. Vogel CM, Jensen JE (1985) Effort thrombosis of the subclavian vein in competitive swimmer. *Am J Sports Med* 13:269–272.
11. Von Schroetter L (1899) *Erkrankungen der Gefäße*. In: Nothnagel H (ed.): *Spezielle Pathologie und Therapie*, Band XV, II. Theil, II. Hälfte: *Erkrankungender Vene*. Holder: Vienna, pp 533–535.
12. Zell L, Kindermann W, Marschall F, Scheffler P, Gross J, Butcher A (2001) Paget-Schroetter syndrome in sports activities—case study and literature review. *Angiology* 52:337–342.
13. Zell L, Scheffler P, Marschall F (2000) Paget von Schroetter Syndrome durch Ringsport. *Sportverletz Sportchaden* 14:31–34.

Copyright of International Journal of Angiology is the property of Springer - Verlag New York, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.