



**36th South African
NATIONAL BLOOD
Transfusion Congress**

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SHAPING A SUSTAINABLE FUTURE

Brachial artery pseudoaneurysm, a rare complication of blood donation, at the Western Cape Blood Service, South Africa.

Shaldine Sutton



Western Cape Blood Service
Do something remarkable

Background

Common donor adverse reactions:

- fainting
- bruising/contusions, haematomas



Serious complications of arterial puncture as a result of blood donation:

- brachial artery aneurysms
- pseudoaneurysms
- arteriovenous fistulas

Aneurysms are exceedingly rare and have not been reported at WCBS prior to this case.

Jaiswal, LS, Khan T & Pandit N. A rare complication after blood donation: brachial artery pseudoaneurysm. *Indian J Vasc Endovasc Surg* 2018;5:201-2.

Bhatti L, Shamugan SK & Ward BS. True brachial artery aneurysm following blood donation: a case report of a rare complication. *EJVES Extra* 2007;13:44-6.

Newman Bruce. Arm complications after manual whole blood donation and their impact. *Transfusion Medicine Reviews* 27 (2013) 44-49.

Case Report

- October 8th 2021, a first-time, 66 year old male donated whole blood.
- Donation began well, phlebotomist re-adjusted the needle due to reduced flow.
- No visible signs of bruising.
- A haematoma developed hours later.
- Arnica was applied and he was referred to his GP.
- Following the GP consultation he was reassured the haematoma should heal within a week.

Haematoma one day post donation



Case Report

The donor presented approximately 7 days later:

- bruising lessened
- swelling in the antecubital fossa increased
- referred pain to his shoulder & wrist
- arm extended due to the discomfort.

Referred back to his GP, who again provided reassurance.

Approximately 1 week post donation



Case Report continued

At his third consultation, the GP identified a pulsatile mass in the antecubital fossa area with intact distal pulses.

The donor was referred to a vascular surgeon who examined and performed an ultra-sound, confirming the diagnosis of a subcutaneous haematoma.

One month later

- Severe swelling in the antecubital fossa, extending to the inner arm.
- Pain radiating to his shoulder and back.
- Reported a pulsating feeling in his chest.
- Referred again to the vascular surgeon & diagnosed with a large pulsating pseudoaneurysm.



Vascular surgeon's report

- Surgical repair was performed the following day.
- Tourniquet placed around the upper arm and inflated.
- Dissection of the pseudoaneurysm and a small hole, 1 mm in size was seen in the brachial artery.
- Repaired with 6/0 Prolene suture.
- Excision of the haematoma sac, without damage to surrounding tissues.
- Tourniquet released to confirm the arterial hole was sealed.
- The wound was closed in layers.

Image of the clotted haematoma & pseudoaneurysm sac

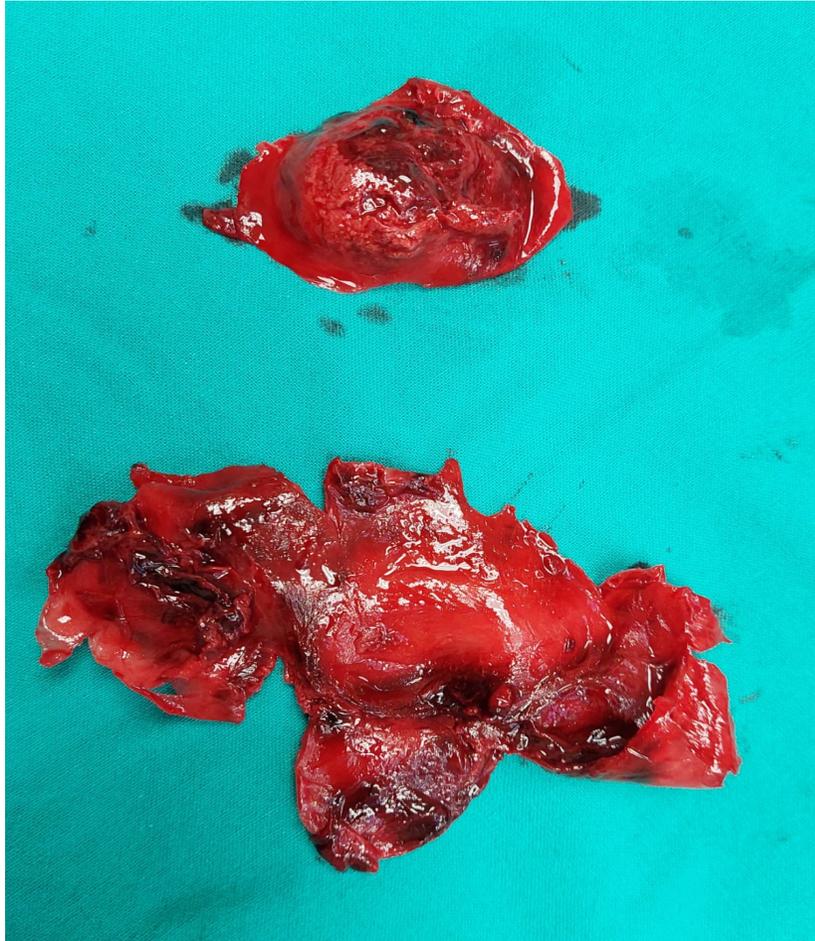
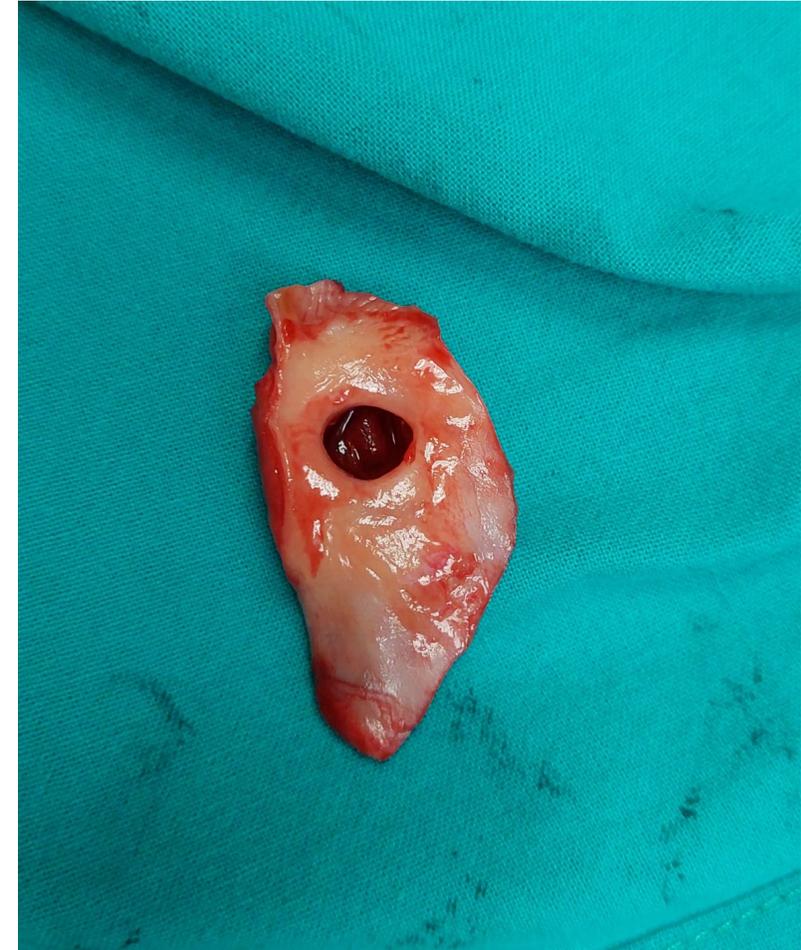


Image of the defect on top of the aneurysm



Vascular Surgeon's report and images provided by Dr Ariel Eyal MBChB MMed (Surg.) (Pret).

Case Study continued

- The following morning a good radial pulse was confirmed prior to discharge.
- Swelling around the arm was still observed.
- The procedure was successful and the donor recovered fully.
- During the 4 months his income was limited as he required full use of his arms due to being a sewing machine repair technician.
- The donor was compensated for loss of earnings and no medical bills were expensed to him (*no medical aid cover*).
- He returned to work on 21 January 2022.

One week post surgery



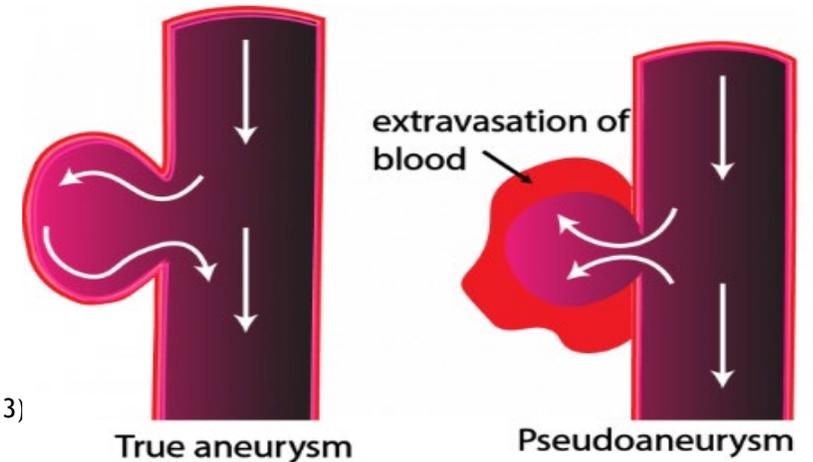
Discussion - arterial punctures

- Rare complication of phlebotomy for blood donation - 0.014%. Statistically may occur up to 22 times per year for WCBS.
- A third of arterial punctures result in haematoma formation.
- Very few arterial punctures result in pseudoaneurysm formation (0.1-0.4%).
- Arterial punctures are more common in men and first-time blood donors.

Jaiswal, LS, Khan T & Pandit N. A rare complication after blood donation: brachial artery pseudoaneurysm. Indian J Vasc Endovasc Surg 2018;5:201-2.
Newman Bruce. Arm complications after manual whole blood donation and their impact. Transfusion Medicine Reviews 27 (2013) 44-49.

Discussion continued

- Pseudoaneurysms ('false' aneurysms) of the brachial artery occur due to inadvertent puncture of the artery.
- Leakage of blood occurs into the surrounding tissues.
- The puncture site fails to permanently close.
- Pseudoaneurysms are surrounded by haematoma and not by the vessel wall.



Newman Bruce. Arm complications after manual whole blood donation and their impact. *Transfusion Medicine Reviews* 27 (2013)
Pseudoaneurysm - Critical Sonography: posted 24 September 2021

Identifying arterial punctures

- Pulsating needle and/or collection tubing.
- Pulsatile column of blood in tubing.
- Collection of bright red blood.
- Fast collection time (e.g. < 3-4 minutes).
- Difficult venepuncture, needle manipulation.
- Haematoma development and/or significant (and sometimes pulsatile) blood leakage from venepuncture site.
- Development of paraesthesia, severe or worsening pain, coldness or paleness of lower arm.

Management of arterial punctures

Immediate treatment:

- Remove needle.
- Local, firm pressure for at least 10 minutes.
- Apply pressure bandage for at least 5 hours. Check circulation before donor leaves the donation clinic.
- Report to Transfusion Specialist for follow up with GP.

Home treatment using **RICE**:

- **R**est - avoid heavy lifting, gentle movement is recommended for 36 hours.
- **I**ce - apply an ice pack.
- **C**ompression - apply pressure to the point of needle insertion.
- **E**levation - when resting raise arm above level of your heart.
- Avoid aspirin & ibuprofen for 24 hours.
- Contrast bathing after 36 hours may be helpful in reducing swelling.

Conclusion

- It was evident that pseudoaneurysms develop slowly.
- Blood collection staff should be made aware of this rare but serious blood donation complication.
- Signs and symptoms should prompt suspicion and early management.
- Repeated follow up may assist with early diagnosis and avoid potential complications of pain, rupture, neuropathy, local skin ischemia and potential limb loss.
- WCBS have educated our medical collection staff and have implemented measures to follow up on donors we suspect may have had an arterial bleed.

Acknowledgements

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Thank you