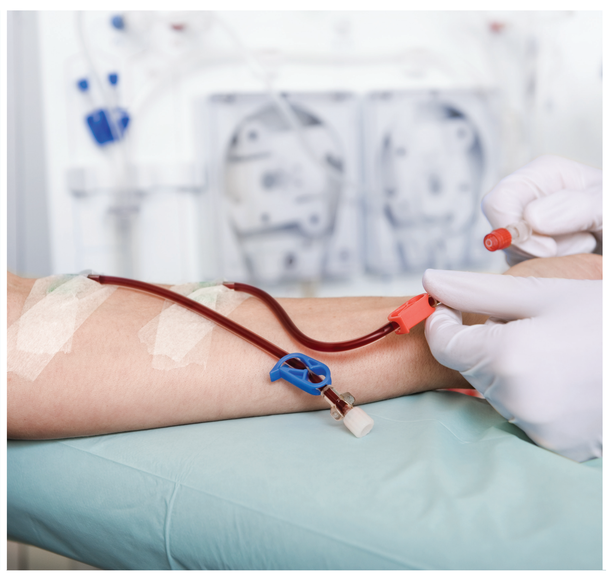

Case of ruptured AV fistula

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Background

In some cases, medical personnel have a difficult time convincing their patients on chronic hemodialysis (HD) to agree to certain medical treatments or interventions. As chronic HD patient are being seen in the dialysis unit 3 times a week, changes in their condition are more difficult to notice as these changes are happening very slowly almost unnoticed for the patient himself. It is also difficult for the medical personnel to judge when to intervene as a chronic condition is deteriorating very slowly. Chronic HD patients very often tend not to accept the severity of their own condition and they hesitate to undergo the procedures even if their doctor considered it necessary for the patient.

The case

28 year-old male patient failed peritoneal dialysis due to recurrent peritonitis and needed transfer to hemodialysis

- Apr 2009 - Cimino fistula on the left radial artery was created.
- May 2010 - Stenosis on the venous side close to the anastomosis was diagnosed. Patient declined plan for percutaneous angioplasty (PTA).
- 2012 - Elongated and dilated collateral veins have developed *(Picture 1).* These collaterals were used for HD access with lower efficiency. Proposal for ligation of the fistula and creating a new one was denied by the patient.
- July 2014 – Patient received cadaveric kidney transplant. Ligation of the fistula was again suggested but patient still hesitated to undergo the procedure.
- Nov 2014 – Infective complications of the transplanted kidney requiring graftectomy. The patient returned to our HD unit to continue his dialysis.
- On his 3rd HD treatment shortly after cannulation he suffered a rupture of his fistula and developed subcutan hematoma of the upper arm and arm pit requiring urgent surgery *(Picture 2).*

Picture 1 **Occlusion of the cephalic vein may result in dilatation of the subcuteneous venous system of the forearm. There are only few and short areas available for neelding because of the winding veins, and aneurism formation is very common.**

Picture 2 **Chest X-ray taken on the day after the injury shows large subcutaneous hematoma on the left side draining from the axillary region along the chest wall. Volume increase of the soft tissue may indicate a blood loss of 1-1.5 liters.**

Conclusion

We presented the unfortunate case of a young male patient on HD who has suffered rupture of his AV fistula. During the course of his access history there were several points when intervention was suggested by the medical personnel and denied by the patient. This way several opportunities for preventive measures were missed which could have prevented this event.

In such cases with foreseeable negative outcomes we should press our opinion more aggressively against the patients' desire.

Prevention

In order to prevent such fistula rupture, the following should be considered

- Puncturing the fistula with the appropriate method may decrease the chance of developing stenosis or aneurism
- Fistulas should be monitored on a regular basis by physical examination (palpation and auscultation)
- In case of suspected stenosis, duplex ultrasound examination should be performed
- If venous stenosis is diagnosed, percutaneous angioplasty (PTA) should be considered
- In case of a developing aneurism, the area should not be accessed again, look for new puncture site
- In case of progressive aneurism, new vascular access should be created and the aneurysmatic fistula should be ligated.

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