Essay Title: Describe an interesting case you have encountered which had a huge impact on the patient or you personally

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There are several Interventional Radiology cases that I have encountered during my FY2 Radiology placement. However, there was one particular case that not only demonstrated an exciting diagnostic aspect of Radiology, but also the effective interventional radiology procedure. It had made a huge impact in saving the patient's life and also inspired me to become an interventional radiologist.

An 82 years-old gentleman was admitted to the Royal Preston Hospital following a 4-day history of worsening dyspnea, rapidly declining renal function and bilateral legs swelling. Initial investigation via CT Angiogram (CTA) demonstrated an incidental finding of a 13 cm x 9 cm infrarenal abdominal aortic aneurysm (AAA). At this point, the symptoms gave early clues about the AAA causing right-side cardiac failure. Further CTA analysis then showed a severely compressed inferior vena cava (IVC) by the AAA sac. Moreover, there was early contrast filling of the infra-renal IVC. Note was also made of bilateral iliac-veins thrombosis. These features highly raised diagnostic suspicion of an aortocaval fistulation.

Aortocaval fistulae are rare. Its presenting features are fundamentally related to arterial deficiency and increased venous return to the heart[1]. As in this case, the patient presented with dyspnea from high output cardiac failure, acute kidney injury from renal insufficiency and bipedal oedema from venous hypertension. The prognosis and survival rate are greatly influenced from how early it is diagnosed. Although it was estimated to happen in less than 1% of AAA, it has high mortality up to 55%[2] even with surgical intervention (EVAR and open repair). The inconsistency of presentation makes diagnosis often delayed. The best modality for diagnosis is Aortography. Alternatively, Doppler, CT and MRI are less invasive secondary options[1].

Following multidisciplinary discussion, a decision was made to perform Endovascular Aneurysm Repair (EVAR) within 24 hours. Due to high PE risk, suprarenal IVC filter was inserted prior to the procedure. Following standard EVAR stent deployment, completion angiogram revealed a delayed minor endoleak despite further balloon mounding (Figure 1).

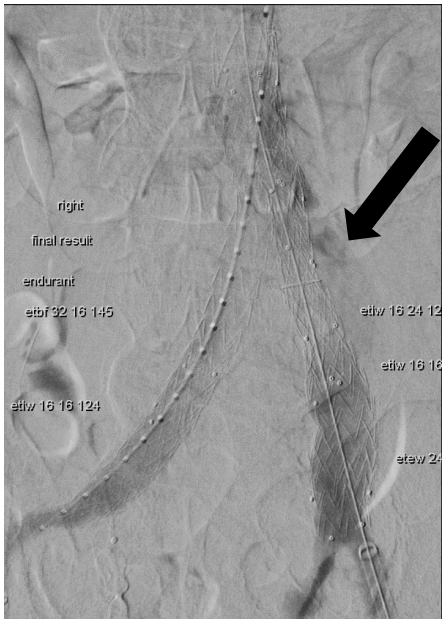

Figure 1 – Minor endoleak post-EVAR (Arrow)

Repeat CT scan after 2 days confirmed type 2 endoleak, with inflow from inferior mesenteric artery (IMA). There was also an outflow tract towards the right anterolateral aspect of the aneurysm suggesting communication with IVC, in keeping with persistent aortocaval fistula (Figure 2).

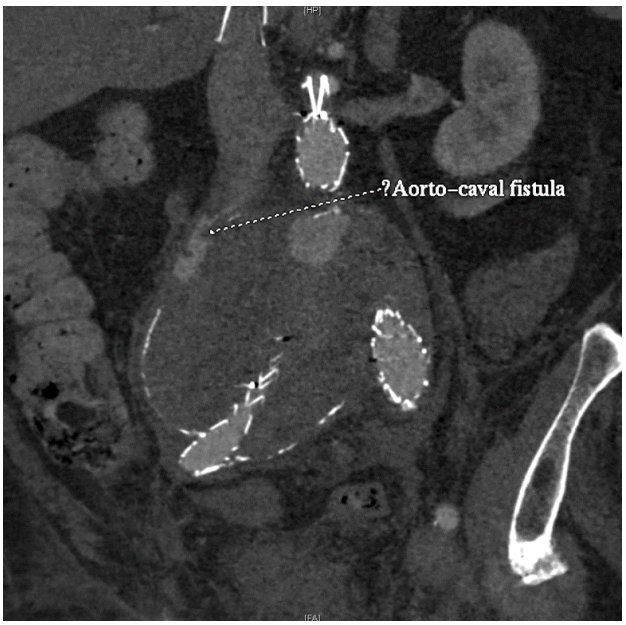

Figure 2 – CT coronal plane post-EVAR suggested Aortocaval fistula

One-week later the patient underwent IMA embolisation. Angiography revealed the continued presence of aortocaval fistulation. Embolisation was achieved using detachable Ruby coils deployed within the sac itself and further coils packed tightly at IMA to avoid further leak (Figure 3).

Figure 3 – No residual endoleak post-embolisation

The procedure was effective and there was no post-operative complication. Follow up CT angiogram at 3 and 6 months showed occluded aortocaval fistula and slight reduction in the AAA sac.

Overall, this case has demonstrated the mixture of solving diagnostic puzzle and utilising several IR techniques to successfully save the patient's life. Personally, it highlighted Interventional Radiology as a very satisfying specialty that I wish to pursue as a long-term career.

References

1. Lorenzati B, Perotto M, Bottone S, Tenconi G. Aortocaval fistula. Intern Emerg Med.2014;9(8):895-6.

2. Schmidt R, Bruns C, Walter M, Erasmi H. Aorto-caval fistula- an uncommon complication of infrarenal aortic aneurysms. Thorac-Cardiovasc Surg. 1994;42(4):208-11.