CASE REPORT

Successful transcatheter embolisation of iliac artery mycotic aneurysm in a neonate

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We report a case of a term infant presented to the Norfolk and Norwich University Hospital NHS Trust with Methicillin Resistant *Staphylococcus Aureus* (MRSA). This was complicated by multiple skin and intra-abdominal abscesses and a mycotic aneurysm of the internal iliac artery treated with coil insertion.

A term male infant with a birth weight of 2.47 kg was delivered by emergency caesarean section for fetal distress. The placenta was small and showed evidence of chorioamnionitis. Due to persisting hypoglycaemia, an umbilical venous catheter was inserted on day two to deliver concentrated dextrose solution. The position of the catheter was confirmed to be in the umbilical vein by an abdominal X ray. The catheter was removed on day five.

The following day its tip was reported as growing *Staphylococcal aureus*. This was reported as MRSA one day following his discharge from hospital. His general practitioner was informed, and the infant was clinically well when examined on that day. Nasal and skin swabs taken from mother and infant were positive for MRSA.

At 12 days of age, the baby was readmitted with history of irritability, pyrexia and multiple skin abscesses. MRSA sepsis was suspected and he was commenced on intravenous vancomycin and cefotaxime. Blood culture subsequently grew MRSA.

Following ten days of antibiotic treatment, his clinical condition had not improved. Dilated superficial blood vessels were visible in both groins, with concomitant lymphadenopathy and pitting oedema of the local abdominal wall. Abdominal ultrasound revealed an aneurysm of the right internal iliac artery (1.9×3.2 cm) confirmed on CT scan. (fig 1). The latter also revealed osteomyelitis of his right iliac wing, as well as multiple intra-abdominal abscesses involving the ileo-psoas and gluteal muscles. A cardiac ECHO was performed and demonstrated normal heart with no evidence of endocarditis.

On day 28 the infant was transferred to a tertiary paediatric unit for percutaneous angiographic coil insertion as a day procedure, this was done under general anaesthetic through the left femoral artery. (fig 2 and 3).

He made steady progress and intravenous antibiotics were continued for a total of six weeks. A repeat ultrasound scan 19 days after the percutaneous coil insertion showed no flow and a reduction in the size of the aneurysm (2.7 cm).

He was discharged home aged 8 weeks on oral rifampicin and fucidic acid for a further 6 weeks. One year follow up by the local paediatrician showed he had made good progress, thriving and developing normally. The only long term complication is a right side foot drop with impaired growth of the right foot, possibly related to a bony spur, arising from the right iliac wing impinging on the right sciatic nerve for which he is being followed up by the orthopaedic team.

DISCUSSION

Mycotic aneurysm is a well-reported complication following the insertion of an umbilical arterial catheter, most of these being

located within the aorta itself, with a small number involving the iliac artery.^{1,3} *Staphylococcus aureus* is the organism most frequently associated with this complication.^{1,5}

None of the reported cases to our knowledge were related to umbilical venous catheter as in our case. Most of these aneurysms arise either by direct bacterial invasion from an indwelling catheter, micro-emboli formation or direct extension from adjacent infected tissue. We suspect in our patient the umbilical vein catheter may have acted as a focus for infection and led to bacteraemia and multiple abscesses. We believe the internal iliac artery aneurysm was caused by extension of infection from the right psoas abscess.⁴

This case represents a medical challenge in terms of presentation, treatment and subsequent surgical intervention. Traditionally mycotic aneurysms are treated surgically with extensive antibiotic cover. Coil insertion for treating mycotic aneurysms in peripheral arteries has been described in adults but rarely in children, especially in newborn infants.^{6,7}

Choosing to treat our patient with percutaneous coil insertion was to prevent him from having a catastrophic bleed from the aneurysm, and at that time, it was perceived as the best treatment option with open repair deemed to be a too high a risk.

Figure 1 CT scan of the abdomen showing multiple intra-abdominal abscesses (black arrows) and internal iliac artery aneurysm (White arrows).

Abbreviation: MRSA, Methicillin Resistant *Staphylococcus Aureus*

Figure 2 Angiogram showing the internal iliac artery (Black arrow) and the mycotic aneurysm pre-embolisation.

Our case highlights the risks involved in using umbilical and arterial catheters in newborn babies, and the importance of using aseptic technique at all times. We need to have high index of suspicion in patients requiring indwelling catheters who present with fever, persistent thrombocytopenia or an abdominal mass. The first line of investigation should be an abdominal ultrasound followed by CT scan to confirm the size and the site of the aneurysm. Aggressive treatment with intravenous antibiotics is the mainstay of treatment; however, percutaneous coil insertion in a mycotic aneurysm can provide a safer approach compared to surgical intervention.

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Figure 3 Post coil insertion (black arrows).

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