

## Evisceration of Small Bowel from Umbilical Vein Catheterization in a Preterm African Neonate: An Uncommon Complication.

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*The umbilical vein helps in delivery of oxygen to the fetus in utero. It can be catheterized in the neonate for delivery of fluids and medications. Exchange blood transfusion is one common reason for umbilical vein catheterization. The procedure comes with its own complications. We report an uncommon complication; evisceration of the small bowel which was seen in an African neonate following umbilical vein catheterization.*

**Keywords:** Umbilical vein, Catheterization, evisceration, Blood transfusion

### Introduction

The umbilical vein is present during fetal development, it carries oxygenated blood from the placenta to the growing fetus. The blood pressure inside the umbilical vein is approximately 20mmhg. The newborn baby has a patent umbilical vein for at least a week to two after birth. This vein can be catheterized for ready intravenous access. It can be used for the administration of fluids and medications<sup>1</sup> as well as a site for exchange blood transfusion<sup>2</sup>.

Umbilical vein catheterization may be a life-saving procedure in neonates who require vascular access and resuscitation. Umbilical venous catheters allow rapid access in neonates, but may be associated with various complications. These may include arterial injury, infections, portal venous thrombosis, guideline misplacement, air thrombosis and haemorrhage. Other complications like pericardial effusion and portal hypertension have also been reported<sup>3</sup>.

There is also some ongoing debate as to whether thrombosis and consequent obstruction of the spheno-portal venous system develop from umbilical vein catheterization for exchange blood transfusion<sup>4</sup>. Solitary hepatic abscess in the newborn following umbilical vein catheterization have been reported in two neonates<sup>5</sup>. Small bowel evisceration is an uncommon complication following umbilical vein catheterization for exchange blood transfusion. It has not yet been reported in literature as a complication following this procedure. This paper reports one that was seen in our hospital.

### Case report

O.T. was a 7 day old male neonate who was referred to our centre following a history of refusal to feed and worsening yellowish discoloration of the eyes. He was a product of preterm gestation and was delivered at 28 weeks gestation in a private hospital via vagina delivery. He was the second of a set of twins, the first of the twins died from sepsis. Pregnancy was booked at 6 months at a different private hospital. Pregnancy history and delivery was uneventful.

At presentation, he was jaundiced and had a low grade fever of 38<sup>o</sup>c. He weighed 1.8kg. Serum bilirubin done was 16.4mg/dl (total) and conjugated of 1.6mg/dl. Packed cell volume was 55%. He was to have cannulation of the umbilical vein for exchange blood transfusion. However, the procedure was difficult and attempts were made to scrap and probe the umbilical region. This resulted in spontaneous evisceration of the small bowel through the umbilical opening.



**Figure 1.** Picture of the neonate with eviscerated bowel

The gut was viable with no areas of serosa injury. The gut was cleaned with wet gauze and was slowly returned into the abdominal cavity with non-traumatic instruments. The vein was identified, cannulated and the neonate had the exchange transfusion.

Closure of the umbilical defect with umbilicoplasty was subsequently done using vicryl sutures. The child had good healing and was discharged from surgical care after day six.

### **Discussion**

Exchange blood transfusion is now universally accepted as a safe and effective means of treating severely ill newborns and preventing kernicterus from hyperbilirubinaemia. Hart<sup>6</sup>, in 1925 was the first to describe the technique of exchange transfusion by withdrawing blood from superior sagittal sinus and injecting fresh blood into the saphenous vein<sup>7</sup>. This method has however long been discarded. Diamond et al began using the direct catheterization of the umbilical vein which is currently in use. Many workers have suggested various techniques of umbilical vein catheterization.

Umbilical vein catheterization may be associated with some difficulties especially when the indications for exchange transfusion have appeared several days after birth when the cord is already dried and hard. This can lead to obliteration of the opening of the vein with attendant complications. A new approach to catheterization aimed at reducing chances of difficulty in the procedure was described by Sanchez in 1960<sup>7</sup>. Complications following this procedure have been variously documented<sup>3-8</sup>

However, evisceration of the small bowel following this procedure as reported in this paper is very uncommon and has not been reported previously in literature. The reason for the evisceration could not be easily known with certainty, however, scrapping and probing may have accounted for weakness and damage to the attachments to the umbilical ring leading to evisceration. Prematurity and low birth weight may also be contributory factors.

It may therefore be easy to avoid this complication if meticulous dissection of the vein is done with use of appropriate instruments. Attempts should also be made to avoid undue and excessive probing and scrapping of the umbilical region.

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