

Embolization of Umbilical Vein Catheter - A Benevolence Turned into Liability

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ABSTRACT

Introduction: Umbilical vein catheters have been used in neonates especially critically sick in intensive care units. They are life saving when used as central venous access.

Case report: We report a case of shearing of umbilical vein catheter, which later on embolized into inferior vena cava and then right atrium.

Conclusion: We need to be more careful in such small procedures of umbilical vein catheter removal, that may lead to such horrific complications.

Keywords: Umbilical Vein Catheter, Embolization, Neonate

INTRODUCTION

Since time immemorial umbilical vein catheters have been used in neonates especially critically sick in intensive care units. They are life saving when used as central venous access, fluid and drug administration as well as blood sampling in a population where other modalities may fail. They may be used as a site for recurrent transfusion in cases of erythroblastosis or haemolytic diseases.

Although a number of complications have been enumerated in literature such as embolization, liver abscess/haematoma infection, arrhythmias etc. but umbilical vein catheters have a number of advantages to offer.

We report a case of shearing of umbilical vein catheter, which later on embolized into inferior vena cava and then right atrium, which was later on successfully retrieved percutaneously via transfemoral access.

CASE REPORT

A 32 week male neonate weighing 2.1 kg was brought in the emergency operation theatre of PGIMS, Rohtak because of a broken umbilical vein catheter. The catheter got accidentally sheared by a sharp scalpel while removing sutures by an intern. The surgeon expected the base of the catheter to lie near the base of umbilicus. Thus an attempt was made to surgically retrieve the catheter after relaxation under general anaesthesia, via a supraumbilical incision. Even after thorough relaxation the catheter couldn't be removed. The incision was closed and surgery abandoned.

A repeat skiagram showed that umbilical vein catheter had migrated distally into the right atrium. It was lying coiled in the atria with proximal end in IVC. (FIGURE 1) The patient was later on referred to cardiology department for further intervention. The case was followed and catheter was later on successfully removed via a transfemoral access, using a grasper. The child recovered without any complication.



Figure-1: Umbilical venous catheter migrated to inferior vena cava and tip lying in RT atrium

DISCUSSION

Such a dreaded complication of embolization of umbilical vein catheter have been reported rarely in literature. Dhua et al report a case of 34 week neonate with similar migration of Umbilical Vein Catheter which was later on successfully removed via a percutaneous approach.¹ A similar case have reported by Habib et al, which emphasized that fractured UMBILICAL VEIN CATHETER can be removed via percutaneous or surgical approach.

A typical Umbilical Vein Catheter enters the abdomen at umbilicus. Later on travels in a cephalad direction in umbilical vein, just above the umbilicus, finally following left portal vein and ductus venosus, enters inferior vena cava before terminating in right atrium. Throughout this path embolization may occur after shearing or fracture.^{2,3} When stuck in the liver may cause haematoma, which another awful complication. Choi et al have discussed various mechanisms of umbilical vein catheter breakage. umbilical vein catheter can get damaged and weakened by needles or scissors during catheter fixation. Later on removal of such damaged, weakened catheter can lead to breakage. In our

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case there was accidental shearing of umbilical vein catheter by a surgical blade during suture removal.⁴

The importance of using scissors for suture removal especially in active neonates is highlighted, to avoid this complication. Also removal needs to be done by expert hands as even mild leniency may land up anywhere. The case also emphasize that the tip of any type of catheter (umbilical, epidural etc.) must also be checked after removal to confirm its intactness. Finally a radiograph to confirm any broken embolized fragment of a sheared catheter, that may have gone missed, is a must.⁵

CONCLUSION

We need to be more careful in such small procedures of umbilical vein catheter removal, that may lead to such horrific complications especially when such tiny life is at stake. Removal needs to be done by expert hands as even mild leniency may land up anywhere.

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