

The Carrel patch clamp for renal transplantation

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BACKGROUND

Normothermic machine perfusion (NMP) is a novel technique for assessing and reconditioning transplant kidneys.¹ NMP involves recirculating a red cell-based perfusate through the kidney at near physiological conditions.¹⁻³ The NMP arterial cannula has previously been secured with a ligature at the origin of the renal artery. This damages the aortic patch, which must be excised prior to transplantation. We describe a novel clamp used to preserve the aortic Carrel patch.

TECHNIQUE

The Carrel patch is threaded through one end of the clamp (Fig 1). The clamp is closed (Fig 2) and the screw-threaded pin is tightened, creating a secure seal for attachment to the NMP circuit. The patch clamp also allows preservation of the Carrel patch in kidneys with multiple arteries (Figs 2 and 3). Centralisation of the renal artery within the clamp maximises the seal and size of the patch. Single-use plastic or stainless steel clamps which can be sterilised are available in different sizes.

DISCUSSION

A Carrel patch facilitates anastomosis of the renal artery to the iliac arterial system and reduces vascular complications.⁴ Direct renal artery cannulation for NMP necessitates excision of the aortic patch and carries the risk of creating an intimal flap. The Carrel patch clamp is an innovation that preserves the aortic patch and eliminates the risks of direct cannula damage.



Figure 1 Carrel patch threaded through one half of the patch clamp



Figure 2 Clamp closed around Carrel patch (with multiple arteries) and secured with threaded pin



Figure 3 Clamp in situ during normothermic machine perfusion with multiple arteries secured

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