‘Sweeping’ the Scribner Shunt

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This device makes it possible to clean the Scribner shunt mechanically beyond the 180° turn of the shunt tubes. The device is injected into the shunt with 2-4 ml of saline, the epoxy ball acting like a piston.

After a coagulation episode a minimum of flow must first be restored in the shunt. The device can then be injected in one or both shunt parts to loosen deposits and restore full flow without undue loss of time.

If shunt flow slowly diminishes because of deposits due to 'chronic irritation' adjacent to the vessel tip, the device can often loosen circular clots of fibrin and platelets from the vessel tip area. It can also be used to loosen thrombi higher up in the shunt vein. It may be used in combination with thrombolytic agents. The ball can travel easily along vessels although kinks and thrombotic processes may have made the lumen narrow and tortuous.

The shunt should be examined on X-ray television screen before and during the sweeping procedure.

If the ball sticks in the tube, it can easily be pulled out if the lumen is expanded by injecting saline into it. The diameter of the sweep ball must be somewhat smaller than the inner diameter of the vessel tip.

We have used the device 40 times in 12 patients and have found it of value 15 times. When deposits are loosened in the arterial part, they will be expelled if some drops of blood are allowed to spurt out after the device has been withdrawn. Deposits loosened in the venous part may have to be dislodged proximally.

The device seems to do very little harm to the vessels, as shunts have functioned well for many months after treatment. The patient need not necessarily be heparinized after the device has been used.

Our single complication is mentioned: in a very sick patient returning to dialysis after longlasting therapy for kidney graft rejection, the device had to be used at nearly every dialysis throughout one month before the clinical situation allowed the shunt to function properly. This patient developed
MAKING THE DEVICE FROM SUTURE THREAD

NEEDLE

NYLON THREAD
(Multifilament core, waxed outside.)

SWEEPING BALL
(Drop of epoxy compound polymerising on a knot)

APPLYING DEVICE TO SHUNT

1.
THREAD PASSED THROUGH NOZZLE OF 10ML SYRINGE AND BETWEEN PLASTIC PLUNGER AND CYLINDER WALL.

2.
SYRINGE FILLED WITH SALINE. THREAD COILED INSIDE SYRINGE.

3.
SYRINGE ATTACHED TO SHUNT TUBE.
Quick injection of 2-4 ml of saline forces epoxy ball like a piston into the shunt tube, thereby clearing obstructed area. In some instances, the ball when injected occludes the obstructed area, creating high pressure on deposits which can be loosened.

Thread pulled out while vessel tip area is manipulated from the outside so that epoxy ball can loosen deposits.
gangrene of two finger tips probably due to retrograde embolisation in conjunction with extreme hypotension.

In the arterial part of the shunt, the device should therefore be used carefully with minimum thread length and minimal saline doses.