Temporary Embolization in Urological Practice: Myth or Reality?

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Clot embolization through percutaneous transcatheter technique has proved to be a highly effective and reliable method for stopping bleeding from renal or pelvic areas. The recanalization of the embolized vessels is constant and the recovery of the renal function quite satisfactory.

In case of priapism temporary embolization may be very useful in selected cases.

There are some instances in clinical practice when temporary vascular occlusion may be indicated. This occlusion should be lasting enough to achieve the desired effect (haemostasis in most cases) and should be fully reversible. Such a possibility is indeed very attractive from a theoretical point of view. However, the review of the literature shows that the papers on this matter are relatively few and not conclusive and that there are still doubts about the real likelihood of getting a reliable and safe temporary embolization.

Here we try to assess critically the possibilities and limits of temporary embolization in urological practice on the basis of our experimental and clinical experience [2-5].

Material and method

These studies have already been published elsewhere [2, 3], therefore we report only the essential data. Renal embolization with autologous clots of the left kidney was carried out in Wistar rats through a selective catheterization of the renal artery by an open technique. The animals were sacrificed 6, 12 and 24 hours later and the embolized kidneys were checked either macroscopically or histologically. In some instances, when the embolized kidneys appeared normal at the macroscopic examination, splitted renal function studies were performed by means of PAH clearance. The results showed that the degree of recovery of the embolized kidney was strictly related to the amount of the embolic material injected. In particular, with a dose of 0.1 ml of clot, more than 60% of the embolized kidneys returned to a fully normal macroscopic appearance within 24 hours, while with
higher doses the percentage of irreversibly damaged kidneys increased to 70\%. Also in apparently normal kidneys PAH clearance studies showed a noteworthy impairment of the renal function, with respect to the control opposite kidney.

**Case reports**

*Case 1*: P. D., a 36-year-old woman, was admitted to our Clinic for staghorn renal calculus in a solitary left kidney and Proteus urinary infection. The right kidney had been removed elsewhere for staghorn lithiasis. Preoperative serum creatinine was 1.2 mg\%. An extended anatrophic nephrolithotomy under regional hypothermia was performed. Hypothermia was achieved by cool perfusion with a balloon occlusion catheter.

![Fig. 1a. Case 1. Selective angiography of the solitary kidney revealing extravasation of contrast medium from a lower segmental artery](image-url)