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Embolization of non-tolerated non-functioning kidney graft: Alternative to surgical removal

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Abstract The results of treatment by percutaneous transcatheter embolization in eight cases of non-tolerated non-functioning kidney graft are presented. The symptoms resulting from non-tolerance of the renal graft were fever, pain and haematuria. Embolization was well tolerated in all eight cases and the only adverse effect was post-embolization self-limited fever in five cases. The symptoms of non-tolerance of the graft disappeared immediately in all cases, with minimal morbidity and no mor-

tality. In only one patient was it necessary to perform second embolization procedure to achieve permanent control of symptoms. We conclude that percutaneous embolization of non-tolerated non-functioning kidney graft is an effective procedure with significantly less morbidity than with surgical graft nephrectomy.

Key words Kidney transplantation · Non-functioning · Kidney graft · Graft rejection · Embolization

Introduction

The clinical indications and the appropriate time for allograft nephrectomy in cases of non-functioning kidney transplant are matters of controversy. Routine allograft nephrectomy has been advocated in cases of late renal failure. Other authors have presented good results without removing all irreversibly rejected grafts before retransplantation, showing that not all rejected grafts need to be removed [1]. However, removal of a renal allograft that has failed is still necessary when the patient presents symptoms like fever, pain, haematuria and malaise that cannot be controlled medically.

The mortality and morbidity of transplantectomy have been reported to range from 7% to 20%. In our experience, morbidity is about 16.9% and mortality about 5.6% [3]. The good results reported with embolization of the renal vascular bed [2] encouraged us to use

this procedure in cases of symptomatic late renal allograft failure. The results of this approach in eight cases are presented and discussed.

Materials and methods

Between October 1990 and June 1993, eight patients (seven males, one female) with non-tolerated non-functioning kidney grafts were treated by percutaneous arterial embolization as an alternative treatment to nephrectomy. The mean age of the patients was 39.2 ± 11.2 years. The mean time from transplantation was 39.2 ± 19.8 months. The symptoms presented were: pain ($n = 6$), haematuria ($n = 5$) and fever ($n = 6$).

All the patients were given decreasing doses of immunosuppressants following graft failure, for long periods of time (cyclosporine 5.55 ± 1.42 months and steroids 6 ± 1.63 months). Six patients presented symptoms of graft intolerance after the immunosuppressant treatment and the other two presented such symptoms during the treatment. Six patients were also treated with indomethacin at

maximum doses of 100 mg/day without achieving control of the symptoms.

The procedure was carried out under local anaesthetic using the Seldinger technique and a femoral approach. The embolization materials used in three of the eight cases were absolute alcohol, Ethibloc and Spongostan, respectively. Spongostan with metallic coils was used in the other five.

After graft embolization, isotopic renography was performed to assess whether the embolization was permanent. Post-embolization fever and pain were treated symptomatically. Steroid treatment was stopped in all cases during the first 30 days after embolization.

Results

The symptoms of graft intolerance disappeared immediately in all cases. The results in patient embolized with Spongostan and metallic coils were excellent, but the symptoms of intolerance reappeared 2 weeks later. A second embolization procedure using the same materials was performed and permanent control of the symptoms was achieved.

Five patients presented high fever ($> 38^{\circ}\text{C}$) during the days after embolization (2–4 days) due to the post-infarction syndrome. One of these patients, treated with absolute alcohol, also presented significant local pain, which stopped after 4 days. The other three patients did not experience any adverse effect and the procedure was well tolerated. No complications related to the technique were experienced by any of the patients. The mean hospital stay was 5 ± 1.63 days (2–8 days).

After a mean follow-up of 13 months (range 4–33), all the patients are still asymptomatic; five of them are now

waiting for retransplantation, and in one, transplantation has been successfully performed.

Discussion

Percutaneous transcatheter renal embolization has been reported to be useful to control bleeding caused by renal trauma or renal needle biopsy. This procedure is also effective for renal ablation in patients with end-stage renal disease. In such cases, percutaneous embolization may be an easier and safer alternative than nephrectomy. In cases of intolerance of late failed renal allograft, nephrectomy has a considerable morbidity and even mortality. Thus, the possibility of percutaneous allograft ablation appears logical.

In all of our patients treated by this procedure the control of symptoms was achieved immediately after embolization, and patients no longer needed analgesics. In one case the symptoms reappeared after embolization and a second embolization procedure was needed to control the symptoms permanently. The procedure was well tolerated in all cases and no complications related to the technique were experienced by any of the patients.

We conclude that embolization of non-functioning renal allografts is a safe, effective and minimally invasive procedure that can be carried out as an alternative to conventional surgical nephrectomy.

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