

SECOND TRANSPLANT INTO THE SAME ILIAC FOSSAE: THE IMPORTANCE OF FIRST TRANSPLANT LOCATION

Juan Jose Ballesteros Sampol, Alfonso Guzman Fernandez, Ramon Cortadellas Angel, Albert Frances Comalat and Octavio Arango Toro.

Urology and U.Q.T.R. Departments. I.M.A.S. Hospital Barcelona. Spain.

Summary.- *OBJECTIVES:* To report our personal experience in the reusability of the iliac fossa for renal transplantation (RT) when there are not more favorable options.

METHODS: Of a total of 645 kidney transplantations, which include 52 living-donor transplantations, and three combined kidney-pancreas ones, we have selected seven, in six patients, in whom the same iliac fossa of a previous RT was reused.

RESULTS: The cases reported were preceded by renal grafts placed on lumbar-iliac position, as Gil Vernet described at 1964, varying the classic situation. Trans-plantectomies were always performed using the ex-tracapsular technique. We do think that those two circumstances have facilitated the second location of the graft.

Keywords: Renal transplantation. Re-Transplantation. Surgical techniques.

Resumen.- *OBJETIVO:* Presentar la experiencia personal en la reutilización de la fosa ilíaca para trasplante renal (TR) de no existir otras opciones más favorables.

MÉTODOS: De un total de 645 trasplantes renales que incluyen 52 TR de vivo, y tres combinados de riñón y páncreas hemos entresacado siete, en seis pacientes, en los que se reutilizó la misma fosa ilíaca de un anterior implante.

RESULTADO: Los casos presentados fueron precedidos de implantes que se colocaron en posición lumboilíaca de acuerdo con la descripción que ya en 1964 aportara Gil Vernet variando la situación clásica. En su momento las trasplantectomías se realizaron siempre de forma extracapsular. Esas dos circunstancias creemos han venido a facilitar la segunda ubicación del injerto.

CORRESPONDENCE



Juan José Ballesteros Sampol
Bori y Fontestá, 43 - 8º - 2ª
08017 Barcelona (Spain).

jballesteros@imas.imim.es

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INTRODUCTION

The present reality of the situation of Renal Transplantation in our country has changed some of the postulates we followed in the 60's and 70's. The patient's and graft's survival has not stopped improving and, as well, age limits have been unblocked, as much for donors and recipients, for their inclusion in "surgical waiting lists". The donor type also has changed and if in those years it responded to the profile of young donor deceased in traffic accident, now is nourished more of donors of more age deceased by cerebrovascular accidents.

The more and more increase survival of the patients, above described, and the fact to implant kidneys of donors of greater age can locate us in a real scenario of the necessity to repeat this surgery in one or more occasions throughout the life of the patient in chronic renal disease. Third, fourth or even fifth transplantations are not going to be an exceptional case in the set of the affected population and, although it can be considered that the functional survival of third or fourth transplantations is not going to arrive at the average of the first or second ones, continues seeming the best ofertable option to these patients. It is a reality that the index of retransplantations (RT) has progressively increased as the number of total transplants has also done. Referring data at Catalonia, in period 1984-1997 a 11.7% of RT was reached whereas in 1997-2004 it has reached 16% (1,2).

We want to focus on the difficulties of surgical access that must confront the urologist when that second, third or fourth transplantation is going to be done on an iliac fossa previously "used". It is also true that when the iliac fossa have already been occupied there is the possibility of going to the orthotopic transplantation using the splenic artery and that, therefore, we could locate a third renal transplantation at a "non-used" operating area, but, as it was said before, the aim of this article is to analyze the problems "to return" to have to use the same iliac fossa (it does not concern the reason) in a retransplantation.

MATERIAL AND METHODS

As we have explained, of a total of 645 renal transplantations we have reused the same iliac fossa in 7 occasions in 6 patients. In 5 occasions we returned to the same right iliac fossa, in another one we located it in the left side and, in the seventh, we tried to return to right iliac fossa but it was impossible to use it, so we had to place it in left orthotopic location.

The relation, referring to time, between transplantectomy and retransplantation was immediate (in the same surgical procedure) in a single case and oscillated between 10 and 72 months (average: 27 months) in the rest of them. In all of them the access was through the same incision that in the previous transplantation ("golf's stick" pararectal incision) and we went towards the low part of the iliac fossa, not "touched" by the previous surgery, dissecting the external iliac vessels to receive the anastomosis of the renal vessels. We did not find major technical difficulties based on the time passed from the previous transplantectomy.

There was an increase of the operating time between 30% and 50% higher than a transplantation on a "non-touched" territory.

We did not have perioperative mortality nor greater morbidity although the comparison with the first renal transplantations does not seem suitable given the shortage of the present series.

COMMENTS

The aim of this article is not the evaluation of the results of the third and successive renal transplantations as far as its utility to maintain the patients outside the dialysis regime. There are some articles that focus in that subject. We can say, as a brief summary, that although does not exist differences so far as the survival of the patients, there are if we look at graft's function survival (1) which are around a reduction of 10% after 3 years ($p=0,0001$). On the contrary, there are very few articles about the operating access difficulties that renal transplantation can imply and more specifically, those ones caused by that the reusability of the iliac fossa, which it we want to focus at. (3-5).

The title already indicates, from our point of view, the first factor to consider on the subject, as it is the situation, within the iliac fossa, in which it has been located the graft in the first surgery.

Already in the 50's, mainly in his second half, an absolute consensus was reached in which the positioning of the organ in the iliac fossa was the most suitable. With a preference by "the low" situation of the transplantation that forces the vascular anastomosis to the external iliac vessels or, in some case, a termino-terminal anastomosis of the renal artery with the hypogastric one. The consequence of it is the intimate proximity of the kidney with the iliac vascular axis at which it can pass through in cases of immune rejection or obstructive urinary tract complications (6).

In the middle of the following decade the first Kidney Transplantation at Hospital Clínic of Barcelona takes place successfully in Spain.

This institution incorporated some interesting variations to the classic technique, consisting of performing a nephrectomy of the homolateral native kidney, the lumboiliac situation of the kidney with venous anastomosis to terminal Cava or common iliac vein and arterial anastomosis to common iliac artery. In addition the reestablishment of the urinary tract was done by a pielo-pielic anastomosis using all the ureter of the recipient (7). The consequence was that not only it was the kidney in higher situation but, in addition, remarkably separated of the vascular iliac axis (Figure 1) and seated on the posterior parietomuscular plane of renal pelvis not on horizontal position, but inclined in an angle of 25° so that upper renal pole was more inferior and in contact with the posterior parietal lumboiliac plane, whereas the lower pole was "in air" leaving a clear space between it and the plane of the musculatura of iliac and psoas. This special location was going to have a great importance if a transplantectomy had to be performed.

When a transplantectomy must be performed for any reason, all we know that it is not an easy surgery and that, several articles have showed some percentages of complications (8,9). That has lead to a generalized attitude of those groups that have continued maintaining the "classic" technique of "low" location of the kidney. So, its position in front of a transplantectomy is very clear: they only indicate the extracapsular transplantectomy in non-functioning kidneys that must be removed within the first months following to the renal transplantation, indicating, in the rest of cases, the subcapsular transplantectomy.

Our group has maintained a different attitude and on a total of 645 TR, 113 transplantectomies have been performed, and all, except in two cases, were by extracapsular technique. In 1994 with the title of "Transplantectomy: Why, when and how" in the "Fifth Urologic Interhospitalary Symposium" at the "Hospital de la Esperanza" in Barcelona (10), the experiences of the 5 transplantating centers of the city were contrasted. On about 3,000 TR, transplantectomy had been performed in 13.6% of them. The techniques were distributed almost the same between extra and subcapsular but the majority of them (63.8%) took place before the 6 months. In spite of all, there was a morbidity of 20.29 and a mortality of 7.5%.

In the USA (8) transplantectomy is performed (1995-2003) in 56% of the cases within the first year post renal transplantation with nondespicable index mortality (HR 1,13; $P < .0001$). If the failure happens

after the first year, there is only a 27% of transplantectomies with diminution of vital risk (HR 0,89; $P < .0001$).

Our group showed, at the mentioned simposium in 1994, a 65% of transplantectomies after the six first months with a mortality of 6% and a morbidity of 17.4%. Within this group, 23.23% transplantectomy took place after 4 years.

Once explained the importance of the location of the first graft, the second main point is the type of transplantectomy that has been performed. There is no doubt that the extracapsular technique leaves an iliac fossa much more "clean" for the new location of the graft whereas the subcapsular one leaves a conglomerate tissue that includes capsule and renal sinus adhered to the iliac vessels.

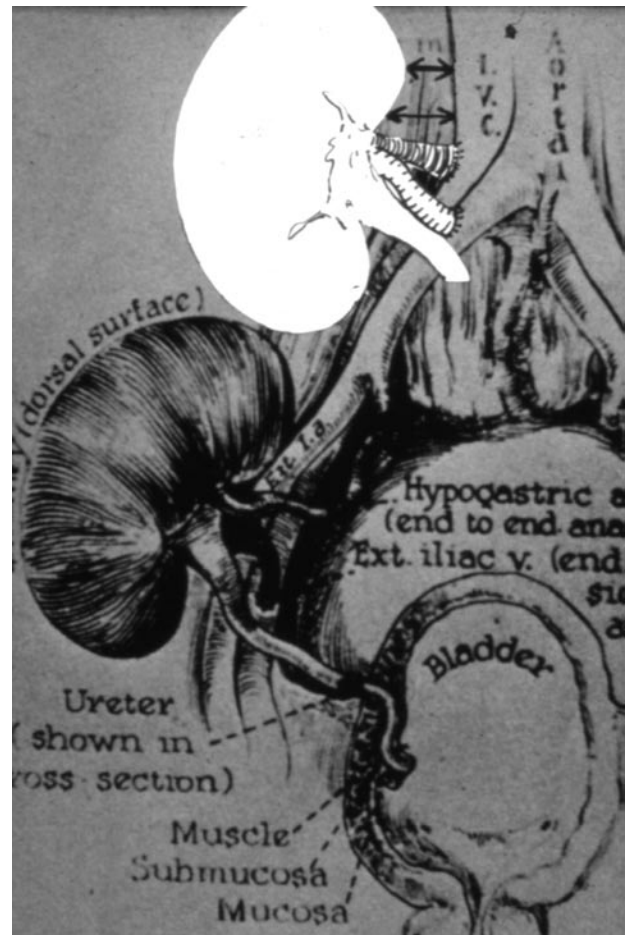


FIGURE 1.

The reason for which the extracapsular technique is less dangerous has been commented before and has been published in an article already referenced. It is enough to say that position allows to dissect the lower renal pole without risk following by all the renal convex edge and its posterior face. The following step is to reach digitally to the space between the upper renal pole and common iliac venous axis what it is going to allow us to have a complete dominion of renal hilum with its individualized dissection (Figures 2,3,4,5 and 6).

In the surgery of reusing the same iliac fossa a basic rule is to look for the less previously surgical affected zones, mainly the vascular ones. That makes that those who have located the graft at the "lower" position, go for the lumboiliac location for the second transplantation since they have the vascular segment over the arterial iliac bifurcation non possible to use.

When the first location is high there is an ampler iliac segment where to choose, but above all

there is much less risk when transplantectomy has to be performed.

It is obvious that transplantectomy cases very near to the first surgery of the renal transplantation will much facilitate the procedure wherever the graft is located. Many of them allow nephrectomy and implantation of the graft in the same surgical procedure without majors problems. Our series only includes one of these cases, but in other series it arrives to 33% (3).

In the last years it is more and more frequent to leave grafts "in situ" if they are asymptomatic or to do an endovascular embolization as first option treatment in non-functioning ones... We are also taking this position but we can not yet communicate any case in which we have retransplanted in the same iliac fossa with a previous embolized graft.

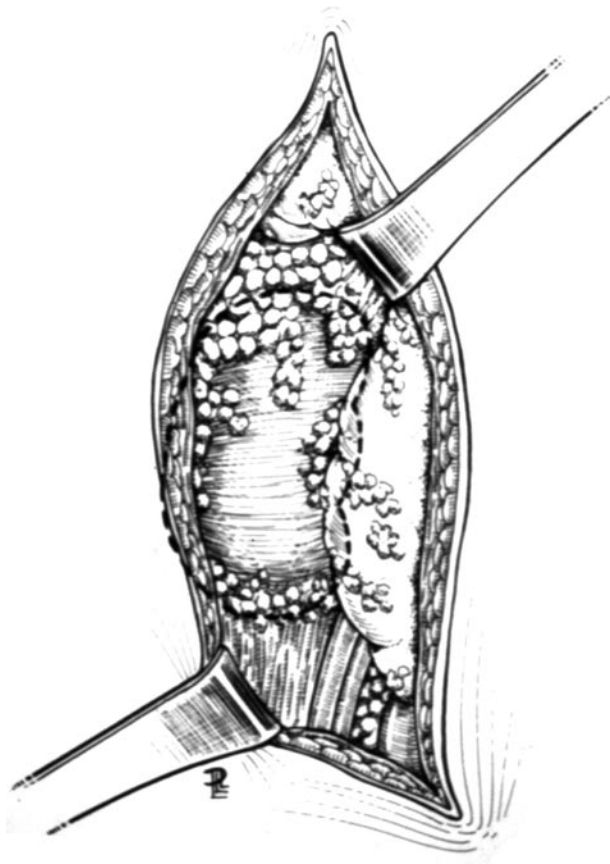


FIGURE 2.

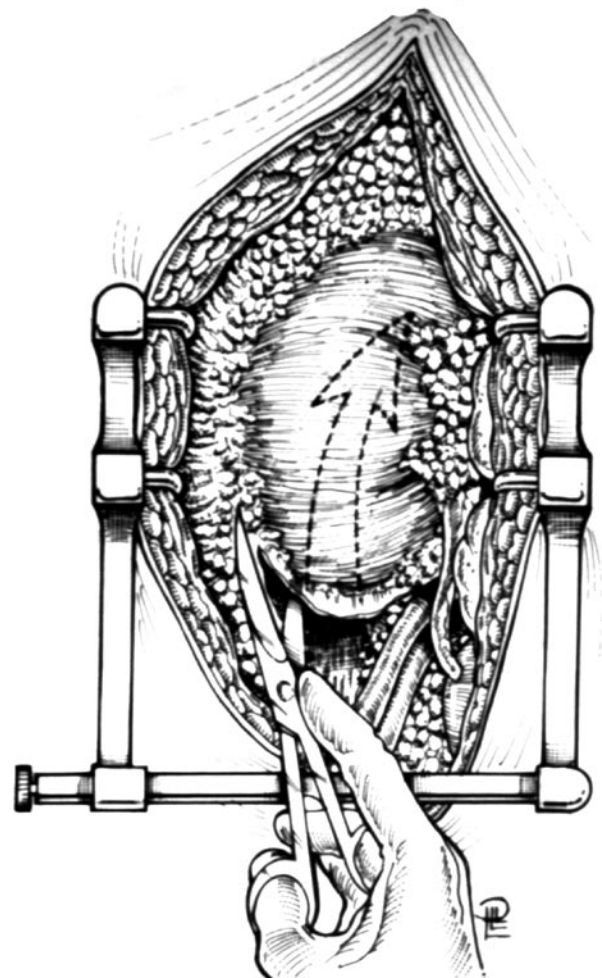


FIGURE 3.

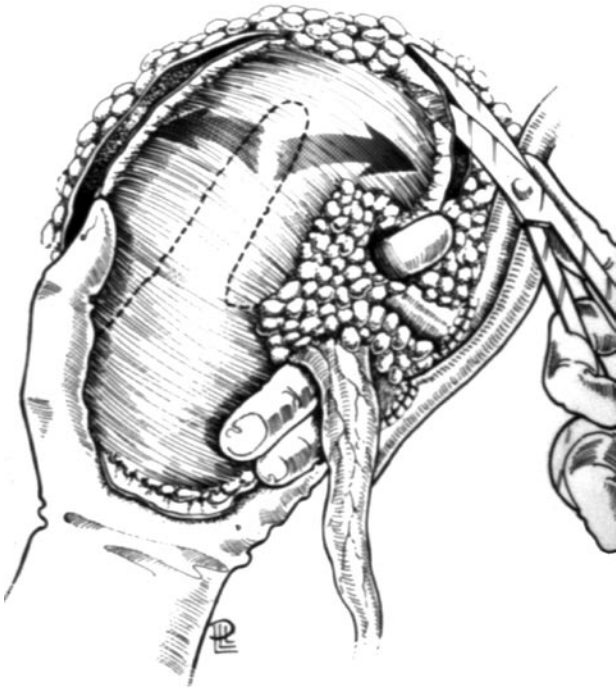


FIGURE 4.

Among the few articles dedicated to this issue we are talking about, a greater perioperative morbidity of retransplantations is described, with a mortality of 2.5% and morbidity between 14% and 38%, with special mention to the vascular ones which can reach the quarter of the total and which leads to losses of the graft in 12.2% of the cases (11). In our 7 cases, as we have already commented, we did not have nor morbidity nor mortality.

The transperitoneal access for these retransplantations has been suggested, which has had opinions favorable and against because of the severity of the possible urinary fistulas.

Our experience is limited to a single case in which we used a transperitoneal access due to not being able to use again the left iliac fossa in a patient that had been transplanted in another center and that later entered our lists, reason why we have avoided its inclusion in this series. The positioning of the graft in orthotopic situation is an excellent option if the architecture of the splenic vessels is favorable.

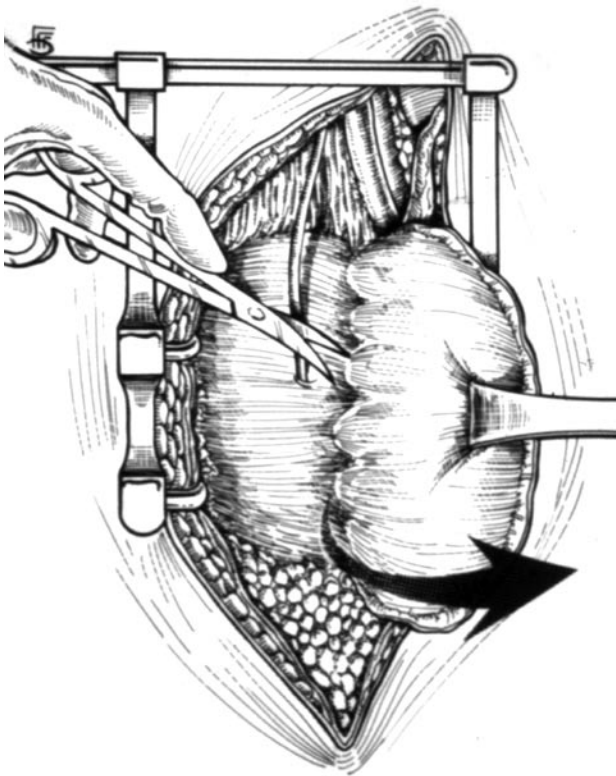


FIGURE 5.

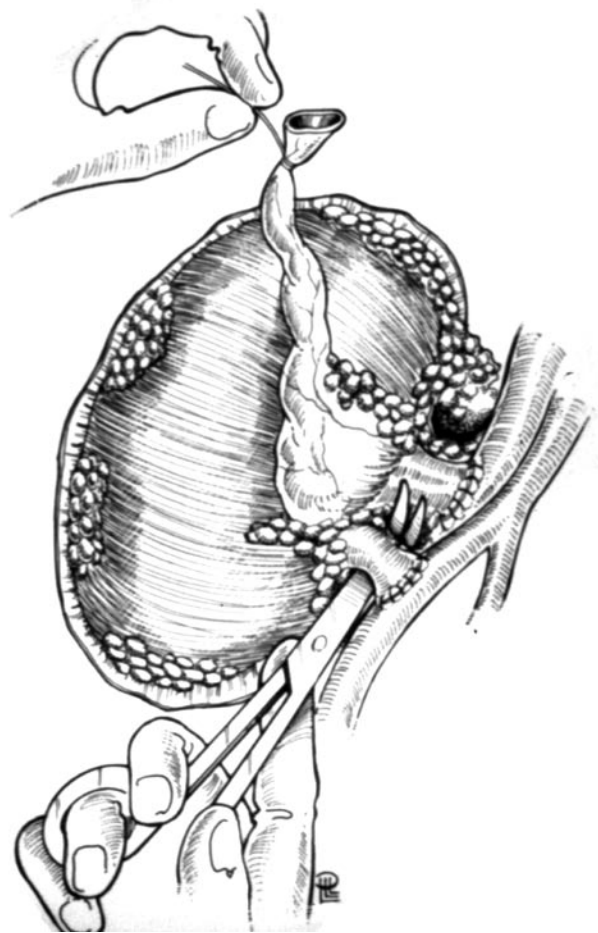


FIGURE 6.

CONCLUSION

The need of having to reuse the iliac fossa for retransplantation imposes difficulties of access that are going to depend on the previous situation of the graft in first transplantation, the number of procedures, if there have been more than one, and the transplantectomy performed. Being feasible to relocate the second kidney in an upper or below position of the previously transplanted graft, we think that the original lumboilicac situation with the extracapsular transplantectomy can prepare better the location of the second graft. As in any surgical activity each group orients its activities based on the obtained experience and, therefore, it must be understood that the personal experience will be always a reality that is offered to contrast with the experience of other groups, what leads us to extract an amplification of options against a problem which we are going to face to with more frequency in the next years.

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