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PROF. DR. İBRAHİM BERBER

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HASTANESİ ORGAN NAKLİ MERKEZİ DİREKTÖRÜ

Böbrek Naklinde Önemli Tarihler

Emerich Ulmann, 1902 – Boyun damarlarına böbrek

nakli: the first case of a renal autotransplantation in a dog with the graft placed in the neck

Alexis Carrel, 1912 – vasküler sütür teknikleri: Carrel proposed a new technique of vascular suturing

Wilhelm Kolff, 1940's – diyaliz makinesi

David Hume, 1947 – Kol damarlarına böbrek nakli: a human kidney allograft was sutured to arm vessels under local anesthesia.

1950's – kidney to femoral vessels

Joseph Murray, 1954 – Tek yumurta ikizleri: the first successful homotransplantation in identical twins.

Cerrahi Prosedür

Donör Ameliyatı

- Açık ameliyat (Lombotomi ile)
- Kapalı ameliyat: Laparoskopik, Robotik

Alıcı Ameliyatı

- Açık ameliyat
- Kapalı ameliyat: Laparoskopik, Robotik

Donör Ameliyatı

Açık ameliyat (Lombotomi ile)

- Standart açık nefrektomi
- Mini insizyon nefrektomi

Kapalı ameliyat (Minimal invaziv)

- Standart Laparoskopik Nefrektomi (+/- Vajinal çıkarım)
- El Yardımlı Laparoskopik Nefrektomi
- Retroperitoneoskopik Nefrektomi
- El Yardımlı retroperitoneoskopik nefrektomi
- Tek Port Nefrektomi (LESS-SILS) (+/- Vajinal çıkarım)
- Doğal Açıklık Nefrektomisi (NOTES)
- Robotik Donör nefrektomi (Standart, SILS, NOTES)

Açık Nefrektomi (Lombotomi insizyon)



ALTERNATIVE OPEN NEPHRECTOMY TECHNIQUES COMPARED WITH LAPAROSCOPIC NEPHRECTOMY

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Benefits and complications of laparoscopic donor nephrectomy

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Topic Outline

SUMMARY

INTRODUCTION AND OVERVIEW

MORTALITY

Benefits and complications of laparoscopic donor nephrectomy

Authors
Ron Shapiro, MD
Daniel C Brennan, MD, FACP

Section Editor
Barbara Murphy, MB, BAO, BCh, FRCPI

Deputy Editor
Alice M Sheridan, MD

ALTERNATIVE OPEN NEPHRECTOMY TECHNIQUES COMPARED WITH LAPAROSCOPIC NEPHRECTOMY — Newer, less morbid open techniques such as the “mini-nephrectomy” and “mini-incision nephrectomy” use a smaller incision, with an average of 10.5 cm, and can reduce morbidity and hospital length of stay, compared with a more traditional open approach [54,55]. However, these techniques have been studied prospectively in only a small numbers of patients.

One study from the Netherlands reported the outcomes of 51 donors who underwent mini-incision, muscle splitting open donor nephrectomy (MIDN) and 49 donors who underwent laparoscopic nephrectomy [55,56]. Benefits with MIDN included shorter warm ischemia and operation time; less disposable use; fewer major complications (zero versus four intraoperative and two major postoperative complications with laparoscopic nephrectomy); and higher one-year allograft survival (100 versus 86 percent). However, MIDN was associated with more blood loss (200 versus 120 mL) and a longer hospital stay (four versus three days). Morphine requirements, pain and nausea perception, time to dietary intake, and decline in serum creatinine concentration at one year did not significantly differ between groups. The authors concluded that MIDN and LDN both lead to satisfactory results and that both techniques can be used to expand living-donor programs.

After a median follow-up of six years, the mean estimated glomerular filtration rate (eGFR) was similar in the mini-nephrectomy and the laparoscopic nephrectomy groups (75 mL/min versus 76 mL/min, respectively) [56]. The five-year death-censored graft survival was 85 percent for the mini-nephrectomy group and 90 percent for the laparoscopic nephrectomy group. Quality of life, assessed by the short form-36 (SF-36), and fatigue, assessed by the multidimensional fatigue inventory-20 (MFI-20), were not different between groups and had returned to preoperative baseline levels [56].

Daha az morbid açık teknik olan “mini-nefrektomi “ ve “mini-insizyon nefrektomi” yaklaşık 10.5 cm insizyondan yapılır. Konvansiyonel açık yöntemle göre hastanede yatış süresi daha azdır ve morbidite daha azdır.

Mini-insizyon, muscle splitting açık donör nefrektomi ve laparoskopik donör nefrektomiye karşılaştıran bir çalışmada her iki yöntemde tatmin edici sonuçları olduğu ve donör havuzunu arttırmak için kullanabileceği ifade edilmektedir.

Laparoskopik Cerrahinin Mantığı = =Az kesi daha iyi

- Açık ameliyattan minimal invaziv cerrahiye doğru bir ilerleme oldu

Büyük cerrah büyük kesi yapar



Laparoskopik cerrahi



SILS



Robotik cerrahi

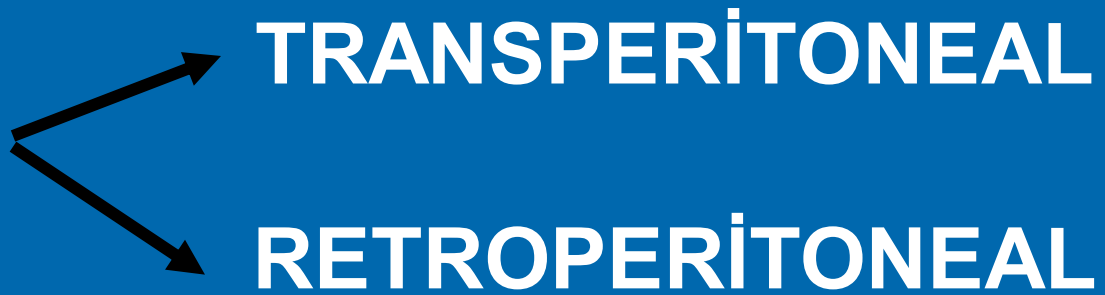
Bu sayede

- Daha az giriş travması olur
- Ameliyat yara izi daha az olur
- Daha çabuk iyileşme

Laparoskopik Nefrektomi Tarihçesi

- 1990-** İlk laparoskopik nefrektomi Clayman, Kavoussi et al. tarafından renal onkositom vakasında yapılmıştır (sağ nefrektomi).
- 1994** - Laparoskopik donör nefrektomi; Porcine Model – Gill et al.
- 1995** – İlk laparoskopik donör nefrektomi (40 yaşında verici)
– Ratner et al
(Böbrek yaklaşık 9 cm insizyondan çıkarılmıştır)

Laparoskopik Donör Nefrektomi



LAPAROSKOPIK DONÖR NEFREKTOMİ

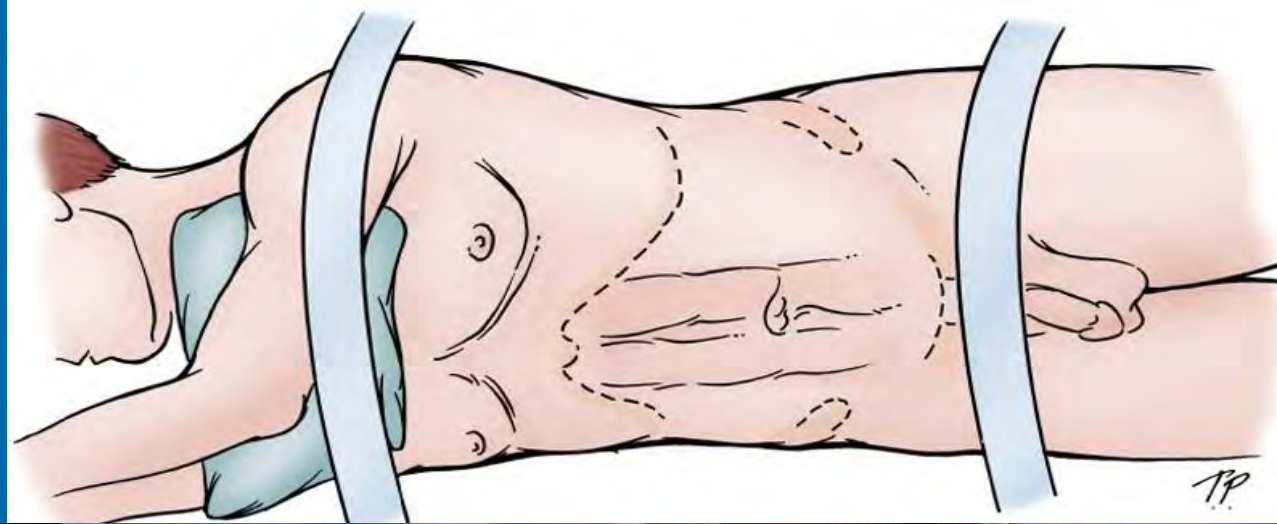
	TRANSPERİTONEAL	RETROPERİTONEAL
Ameliyat sonrası yapışıklık	Fazla	Az- Yok
Peritoneal kavitenin kontaminasyonu	Fazla	Az- Yok
İntraabdominal organ yaralanması	Risk Yüksek	Az- Yok
Barsak herniasyonu	Risk Yüksek	Az- Yok
Pneumothorax or Pneumo-mediastinum	Düşük Risk	Yüksek Risk
Geniş çalışma alanı	Var	Yok
Kılavuz noktalar	Fazla	Az
Oriyantasyon kaybı	Az	Fazla
Öğrenme eğrisi	Kısa	Dik
Geçirilmiş intraabdominal ameliyat hikayesi olması	Zorlaştırır	Etkilemez
Yanlış planda balon şişirme riski	Yok	Var

Laparoskopik Donör Nefrektomi

Lateral Dekubitus Pozisyon

Port Yerleri ve Inguinal insizyon

Pneumo- peritoneum





Diğer portların
yerleştirilmesi



Inguinal kesi
yeri



**Kesi Yerlerinin Sütüre
Edilmesi**



**Lap.Donör Nefrektomiden
birkaç ay sonra port yerleri**

Laparoskopik Canlı Donör Nefrektomi

Açık nefrektomi ile kıyaslandığı zaman

- **Avantajları**

- Daha az travma
- Daha az postoperatif ağrı
- Hastanede yatış süresinin daha kısa olması
- Daha erken işine dönebilmesi (Daha kısa nekahat dönemi)
- Daha küçük yara izi

- **Dezavantajları**

- Teknik olarak daha zor (İleri laparoskopi deneyimi gerekir)
- Daha maliyetli



Benefits and complications of laparoscopic donor nephrectomy

Data Current as of:

Literature review current through: Aug 2014. | This topic last updated: Jul 11, 2014.

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Topic Outline

INTRODUCTION AND OVERVIEW

- MORTALITY
- DONOR MORBIDITY
- RECIPIENT MORBIDITY
- ROBOT-ASSISTED LAPAROSCOPIC DONOR NEPHRECTOMY
- EFFECT ON ORGAN DONATION
- LAPAROSCOPIC NEPHRECTOMY
- ALTERNATIVE OPEN NEPHRECTOMY TECHNIQUES COMPARED WITH LAPAROSCOPIC NEPHRECTOMY
- SUMMARY
- REFERENCES

INTRODUCTION AND OVERVIEW

With the improvements in outcomes after renal transplantation over the past decade, the limiting factor has continued to be the number of organs available for transplantation. Deceased-donor donation rates have remained relatively stable, and, as of mid-2010, over 90,000 patients are registered on the kidney transplant waiting list in the United States [1]. As a result, many programs have focused on trying to increase the rate of living-donor kidney transplantation.

Coincident with this renewed interest in living donation has been the development of laparoscopic-assisted donor nephrectomy [2-5]. This procedure has been adopted by a number of transplant programs around the country and accounts for >50 percent of donor nephrectomies [6].

A significant number of studies have been published concerning the relative effectiveness of this technique, although many are not well designed [6-10]. A 2008 meta-analysis evaluated 73 studies that included 3751 and 2843 patients who had undergone laparoscopic surgery and open nephrectomy, respectively [11]. Compared with open nephrectomy, the laparoscopic surgery group had a significantly shorter hospital stay and a quicker return to work (by 1.48 days and 2.58 weeks, respectively). Both groups had similar rates of delayed allograft function and allograft loss. Overall, a consistent reported observation is that laparoscopic donor nephrectomy (LDN), compared with open donor nephrectomy, is associated with less donor morbidity and similar allograft function and overall safety, but more expense.

The technical aspects of laparoscopic-assisted donor nephrectomy are described separately; this topic review will assess the known risks and benefits associated with LDN and compare them to those seen with open donor nephrectomy.

A discussion of the different surgical techniques is presented separately. (See "Deceased and living donor renal allograft recovery".)

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- Açık nefrektomi ile kıyaslandığında laparoskopik donör nefrektomi yapılanların hastanede yatış süresi daha kısa ve işe dönmesi daha erken oluyor.
- Gecikmiş greft fonksiyonu ve greft kaybı her iki grupta benzer.
- Sonuç olarak, laparoskopik donör nefrektomi açık nefrektomiye göre daha az donör morbiditesine sahip. Greft fonksiyonları ve güvenliği açısından her iki yöntem benzer. Laparoskopik yöntem daha pahalıdır.

Standart Laparoskopik Donör nefrektomi



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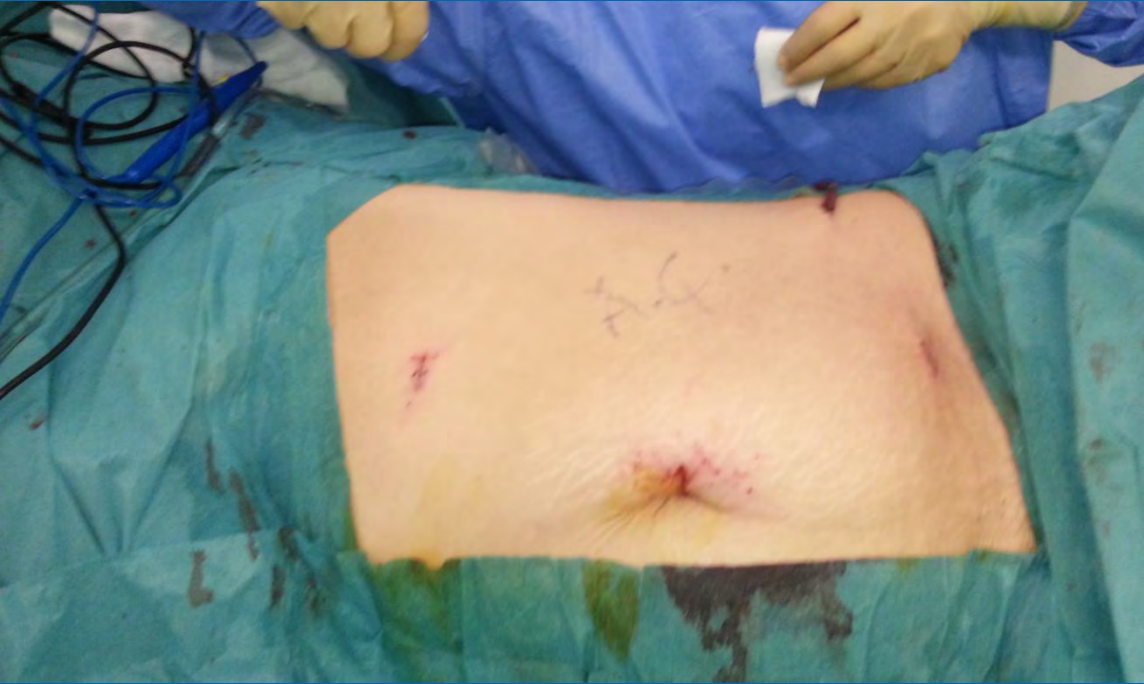
STANDART LAPAROSKOPİK DONÖR NEFREKTOMİ

İBRAHİM BERBER

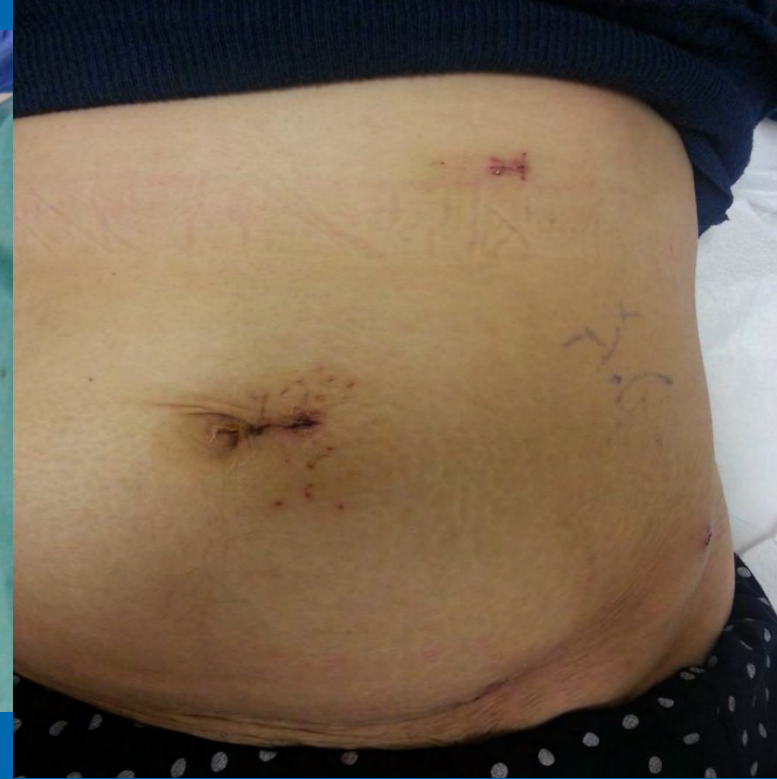
ÖZGÜR ÇAVDAROĞLU

TÜRKER ERTÜRK

Vajinal Çıkarımlı Standart Laparoskopik Donör Nefrektomi



Standart laparoskopi vajinal
çıkarım; Kesi yerlerinin suture
edilmesi

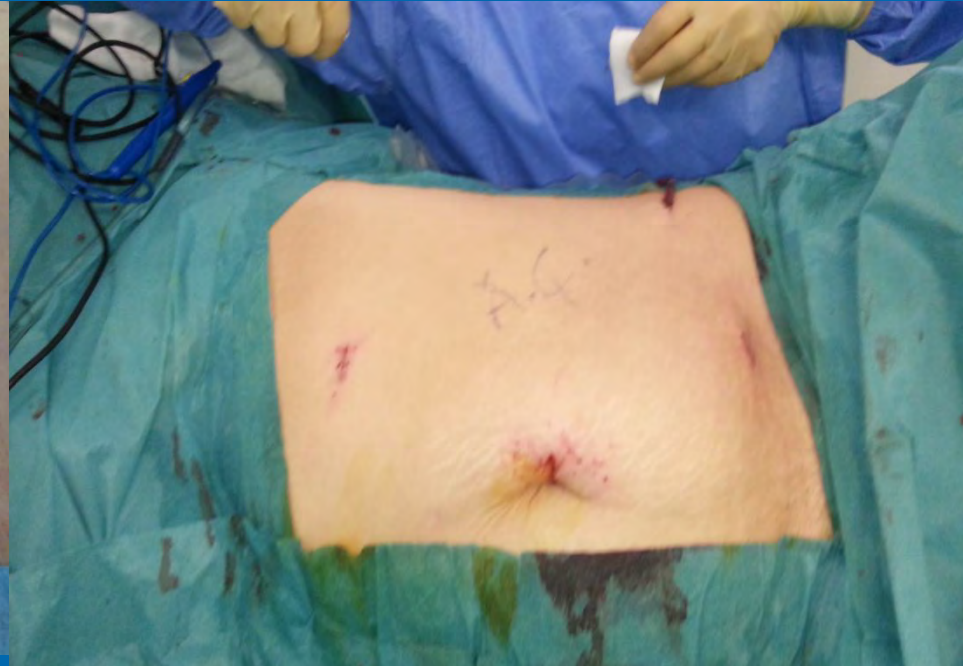


Standart laparoskopi
vajinal çıkarım; postop 8.
gün

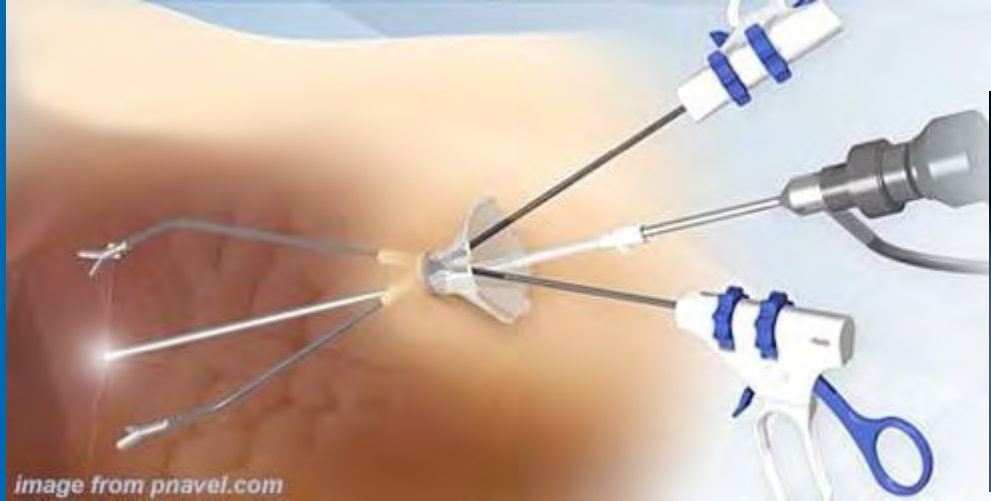
Standart Laparaskopik donör
nefrektomi



Vajinal Çıkarımlı Standart
Laparaskopik donör
nefrektomi

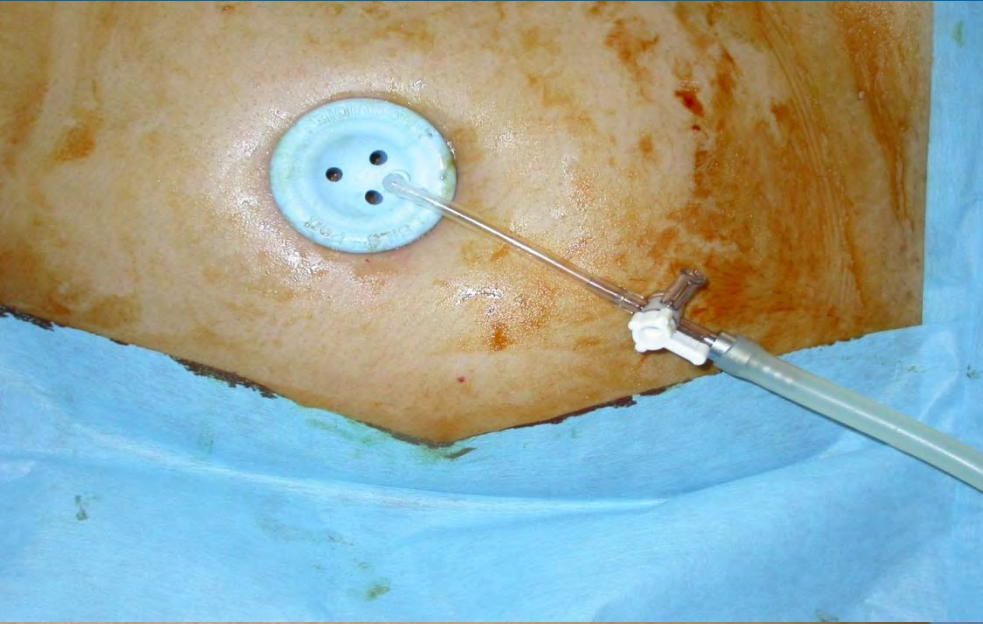


Tek Port Donör Nefrektomi (LESS-SILS)



- SILS; ilk defa 1992 yılında Pelosi tarafından tek port laparoskopik appendektomi yapıldı.

Tek Port Donör Nefrektomi



Tek Port Donör Nefrektomi
Altı ay sonra



LAPAROENDOSCOPIC NEPHRECTOMY - (SILS-LESS)

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Benefits and complications of laparoscopic donor nephrectomy

Topic Outline

- SUMMARY
- INTRODUCTION AND OVERVIEW
- MORTALITY

Benefits and complications of laparoscopic donor nephrectomy

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LAPAROENDOSCOPIC NEPHRECTOMY — Laparoendoscopic single-site nephrectomy is performed through a single site at the umbilicus. A laparoendoscopic approach appears to be a safe alternative to a laparoscopic one for donor nephrectomy. Laparoscopic and laparoendoscopic approaches were compared in a randomized study including 100 kidney donors [53]. Operating time, time to kidney extraction, warm ischemia time, and blood loss were similar between groups. At two months, complete recovery was described by more patients in the laparoendoscopic group, compared with the laparoscopic groups (97 versus 80 percent, respectively). Satisfaction scores and recipient outcomes were similar between groups.

SILS; ilk defa 1992 yılında Pelosi tarafından tek port appendektomi tarif edilmiştir.

Laparoendoskopik tek port nefrektomi umbilikusta yapılan tek kesiden yapılır. LESS standart laparoskopiye güvenli bir alternatiftir.

A randomized, prospective, parallel group study of laparoscopic versus laparoendoscopic single site donor nephrectomy for kidney donation. Am J Transplant. 2014 Jul;14(7):1630-7. doi: 10.1111/ajt.12735. Epub 2014 Jun 16.

Laparoendoscopic single-site (LESS) vs laparoscopic living-donor nephrectomy: a systematic review and meta-analysis. BJU Int. 2014 Mar 3. doi: 10.1111/bju.12724. [Epub ahead of print]

Vajinal Çıkarımlı Tek Port Donör Nefrektomi



Bir ay sonra



Vajinal Çıkarımlı Tek Port Donör Nefrektomi



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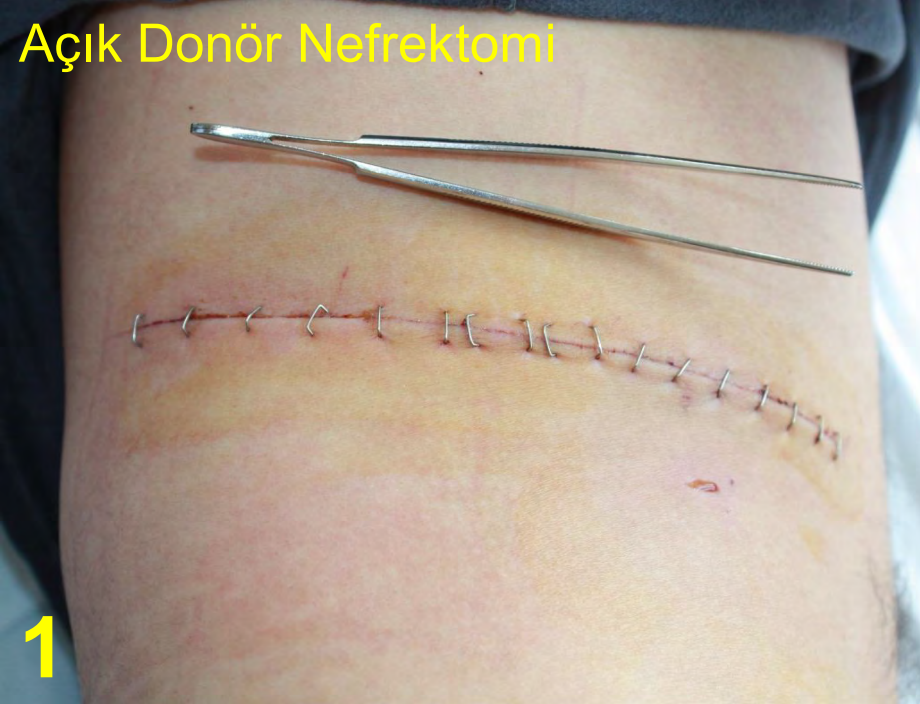
TEK PORT VAJİNAL DONÖR NEFREKTOMİ

İBRAHİM BERBER

ÖZGÜR ÇAVDAROĞLU

TÜRKER ERTÜRK

Açık Donör Nefrektomi



Laparoskopik Donör Nefrektomi



Vajinal Çıkarımlı Laparoskopik Donör Nefrektomi



Vajinal Çıkarımlı tek Port Donör Nefrektomi

ROBOT-ASSISTED LAPAROSCOPIC DONOR NEPHRECTOMY

RALDN; ilk defa 2002 yılında 12 vakalık seride kullanıldığı rapor edilmiştir.

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Benefits and complications of laparoscopic donor nephrectomy

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Benefits and complications of laparoscop

Authors
Ron Shapiro, MD
Daniel C Brennan, MD, FACP

ROBOT-ASSISTED LAPAROSCOPIC DONOR NEPHRECTOMY — The first (RALDN) was in 2002 in a series of 12 cases [46]. There have been several nephrectomies [46-48]. In a study of 20 right-sided LDNs compared with laparoscopic surgery in terms of operative time, postoperative donor glomerular filtration loss to be less with RALDN compared with standard LDN (30 versus 76.4 mL/min/1.73 m²) offers any advantage over conventional LDN, and its added expense is not potential advantages, if present, will become apparent. The procedure is utilized in a small minority of programs.



RALDN, standart laparoskopik donör nefrektomiye göre bir avantaj sağladığı net olmamakla birlikte ciddi maliyete neden olmaktadır.

Da Vinci Robot



Tele-mentoring

- Bir eğitimci tarafından uzaktan cerrahi ve diğer klinik uygulamaların yapılmasına ve eğitime yardımcı olunması

Tele- Surgery

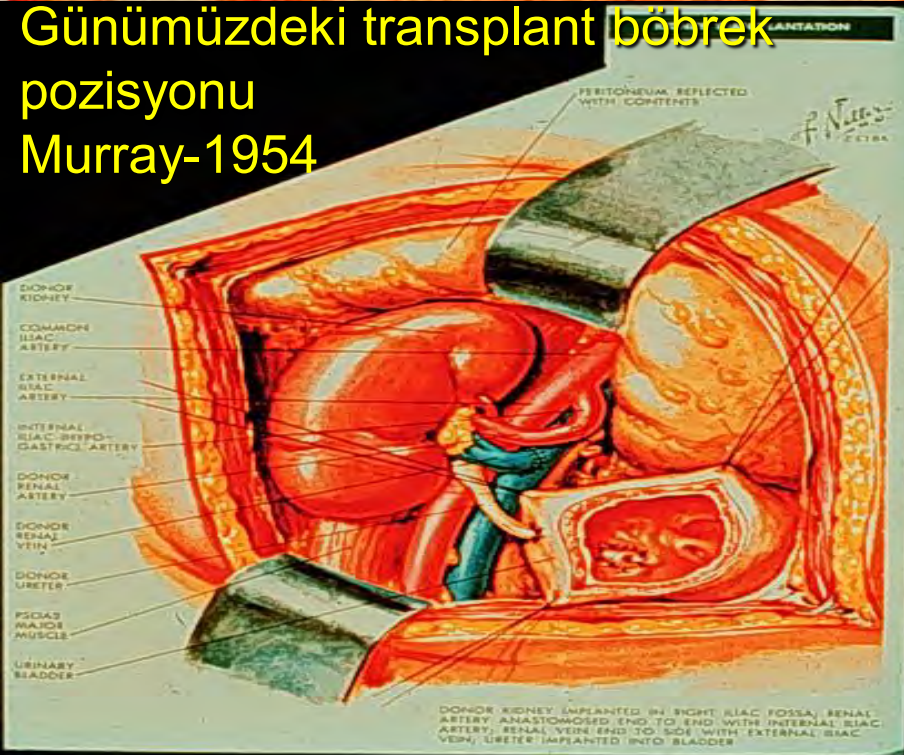
- Uzaktan cerrahi işlemin yapılmasına olanak sağlar.
- First live telecast of laparoscopic surgery performed remotely via the Internet (Robotic Telesurgery) **1996.**



ALICININ HAZIRLANMASI

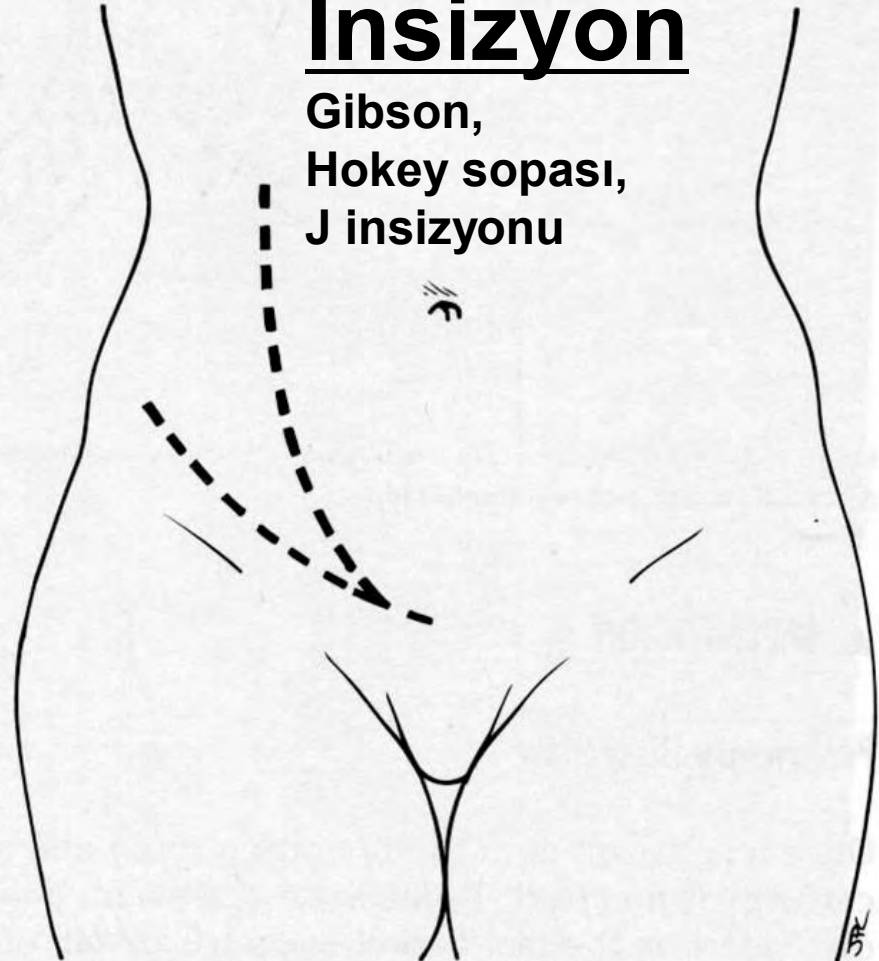
INCISION IN RIGHT
LOWER QUADRANT AND
FLANK THROUGH SKIN,
SUPERFICIAL FAT
AND FASCIA, MUSCLES,
AND TRANSVERSALIS FASCIA,
LEAVING PERITONEUM

Günümüzdeki transplant böbrek
pozisyonu
Murray-1954



İnsizyon

Gibson,
Hokey sopası,
J insizyonu

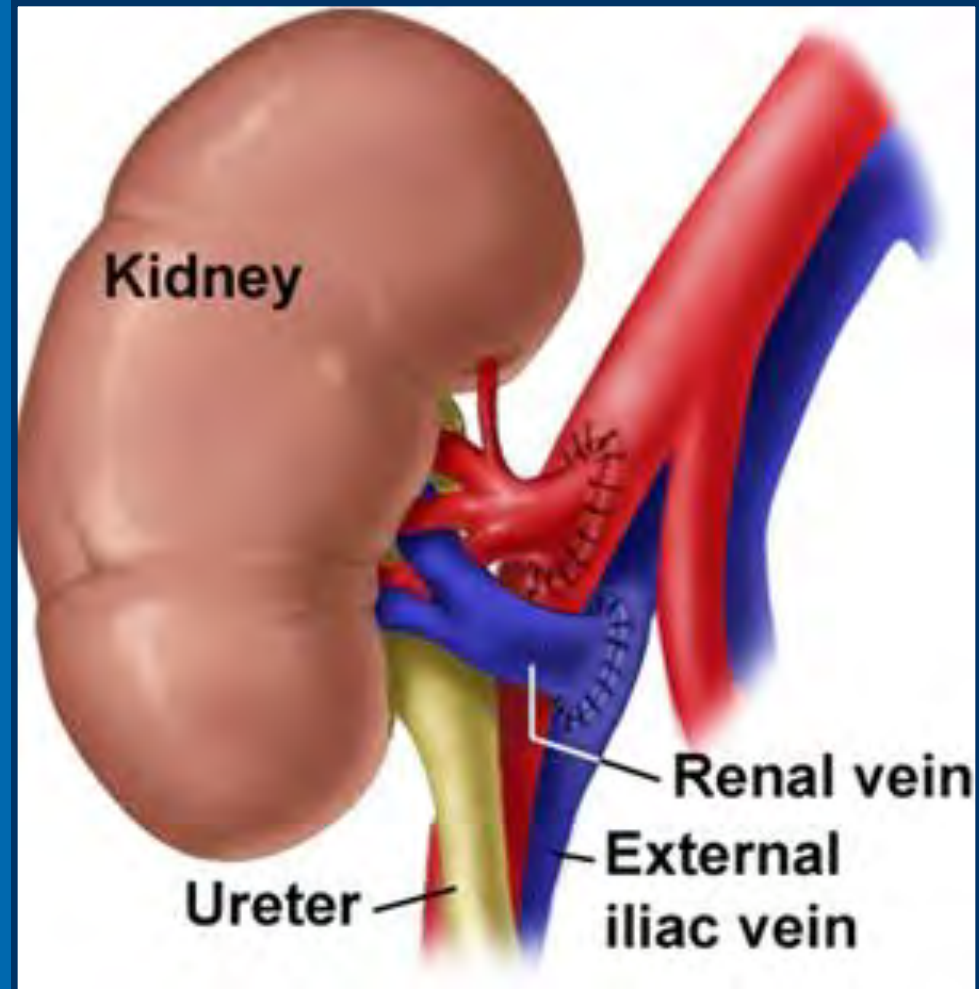


Böbrek Nakli Ameliyatı

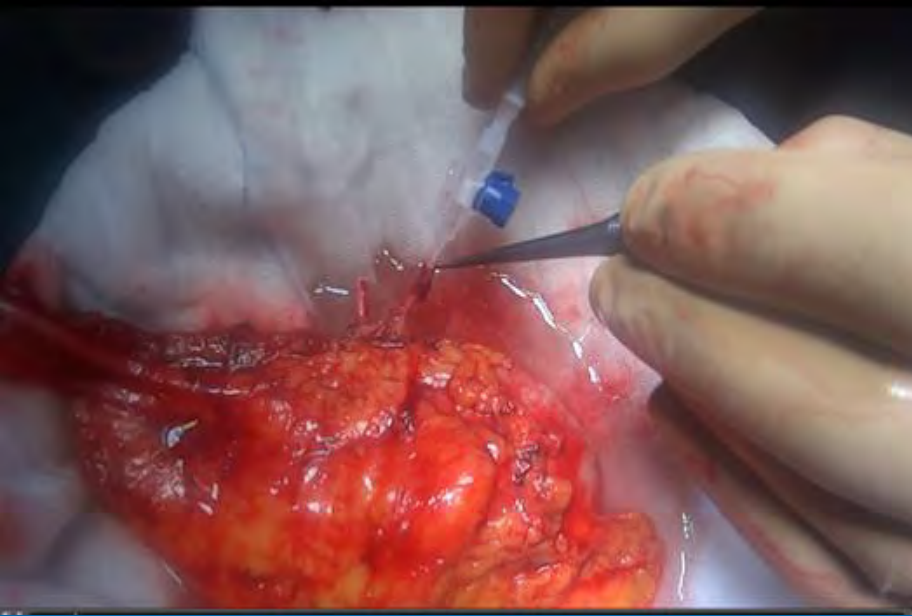
Alıcı Ameliyatı:

- 1) Standart açık böbrek transplantasyonu
- 2) Kapalı ameliyat:
Laparoskopik, Robot yardımlı böbrek transplantasyonu

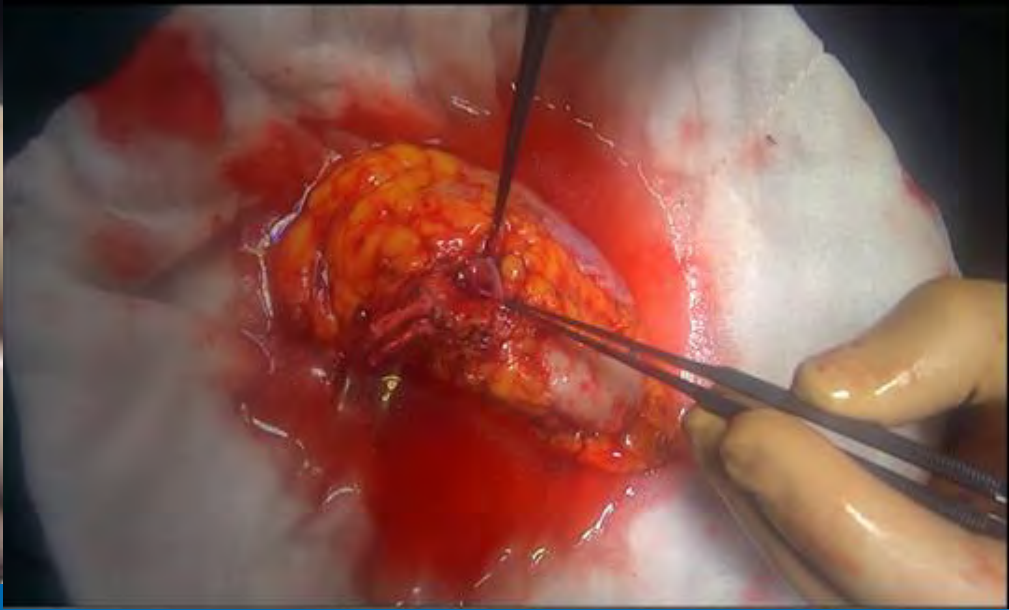
- Böbrek ekstrapéritoneal yerleştirilir.
- Böbrek arteri ve veni alıcı iliak damarlarına anastomoz edilir.
- Üreter alıcı mesanesine anastomoz edilir.



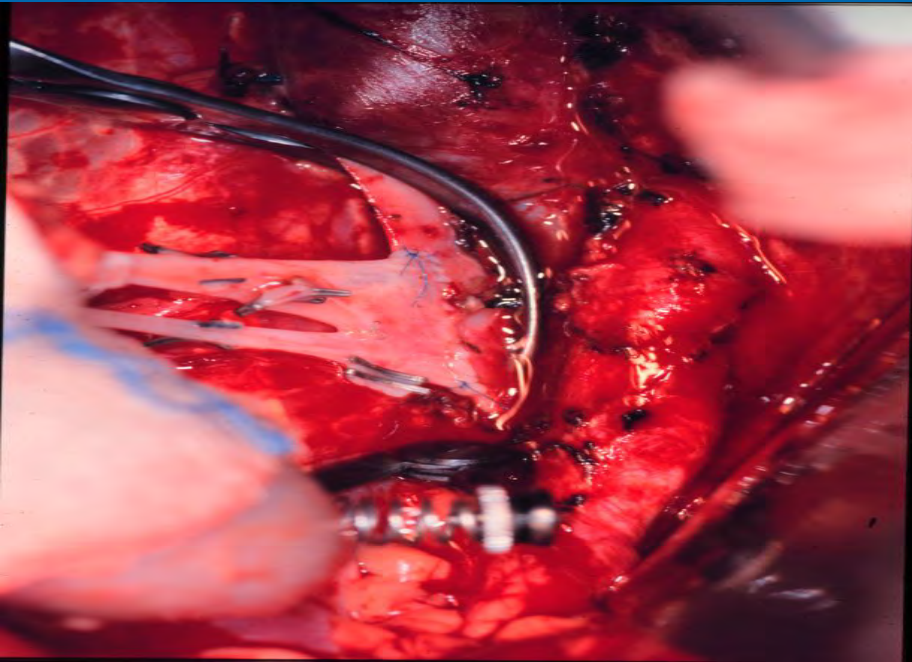
Böbreğin Soğuk Serum İle Perfüzyonu



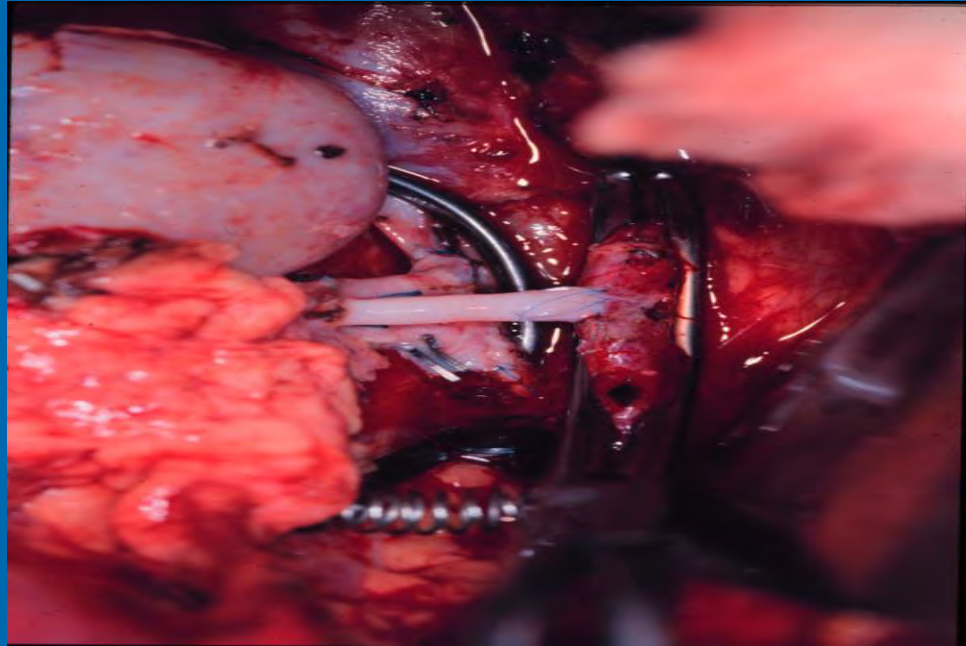
Perfüze Edilmiş Böbrek



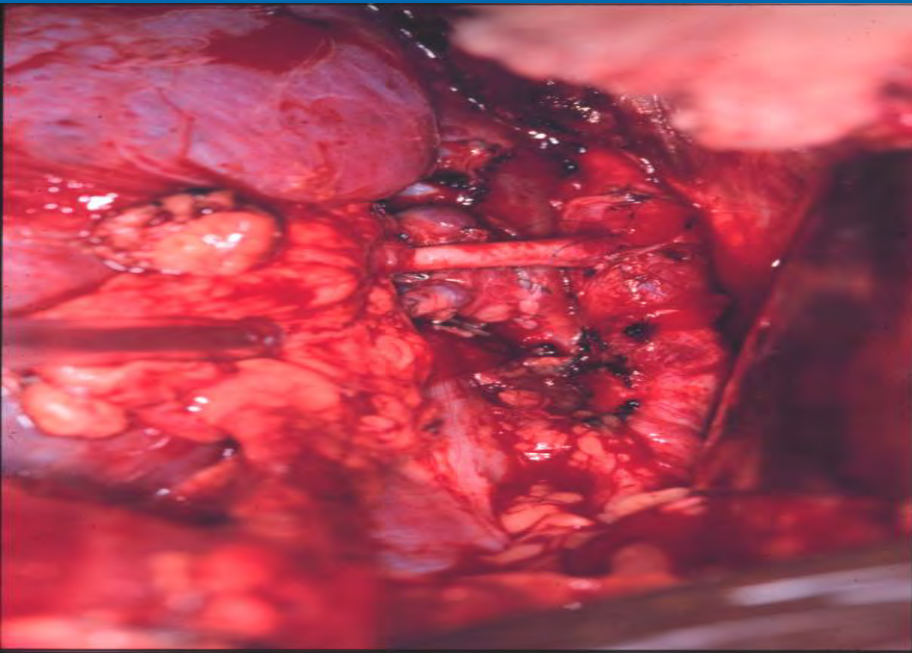
Ven anastomozu



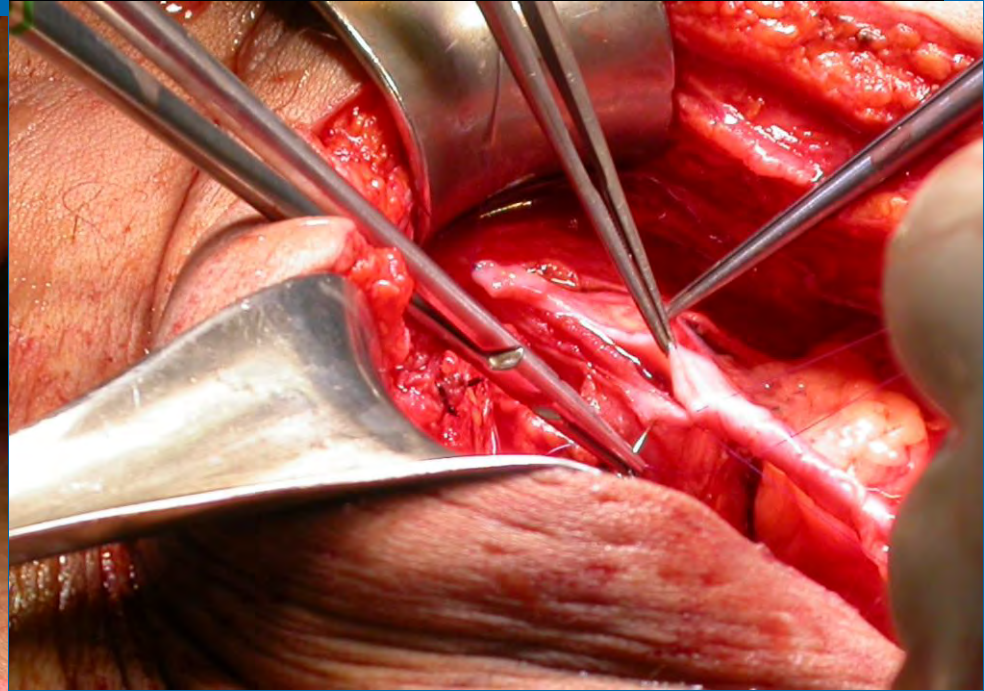
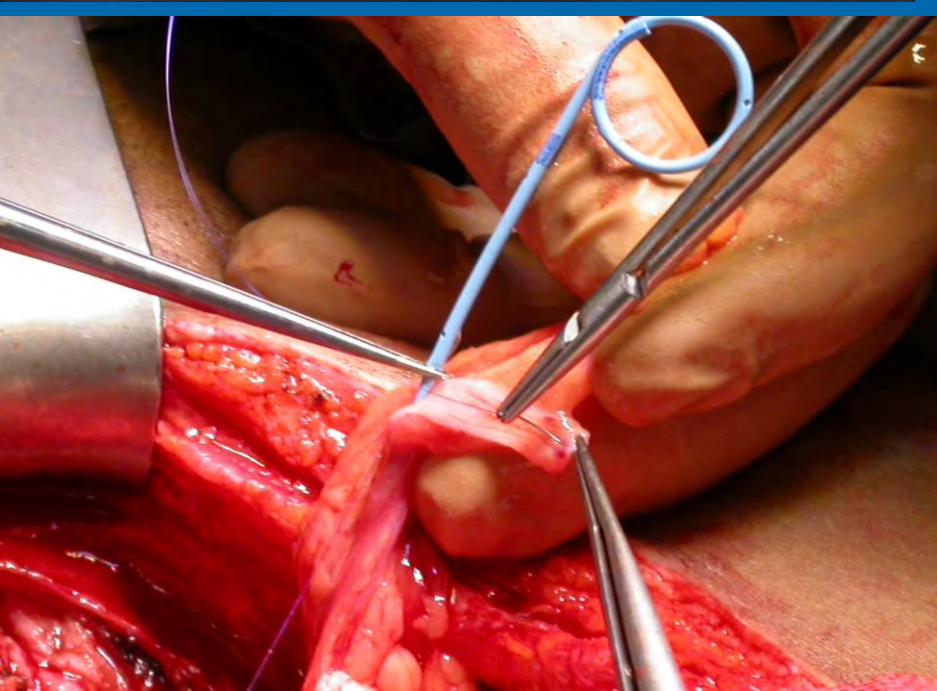
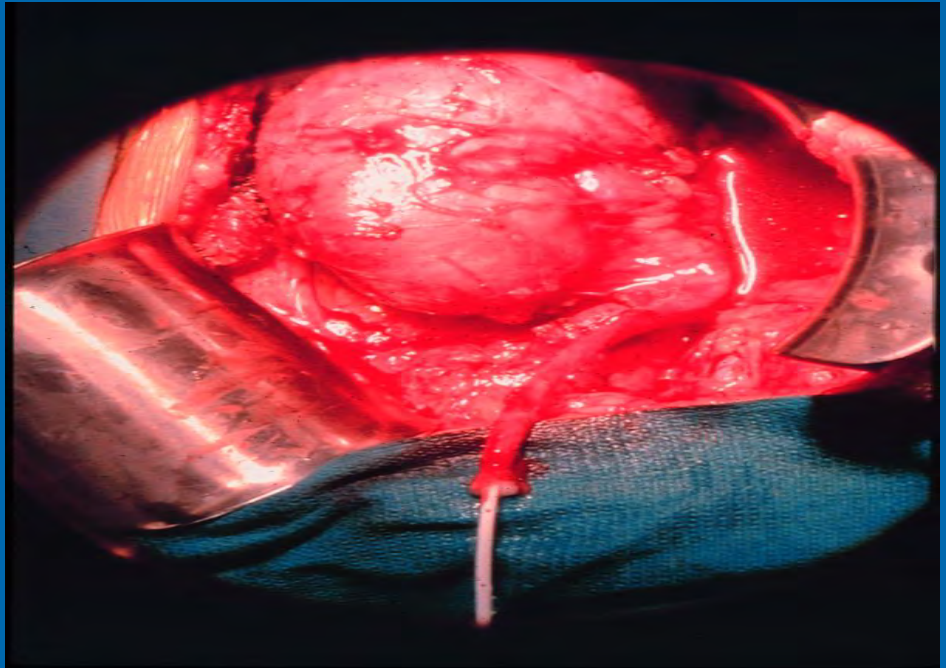
Arter anastomozu

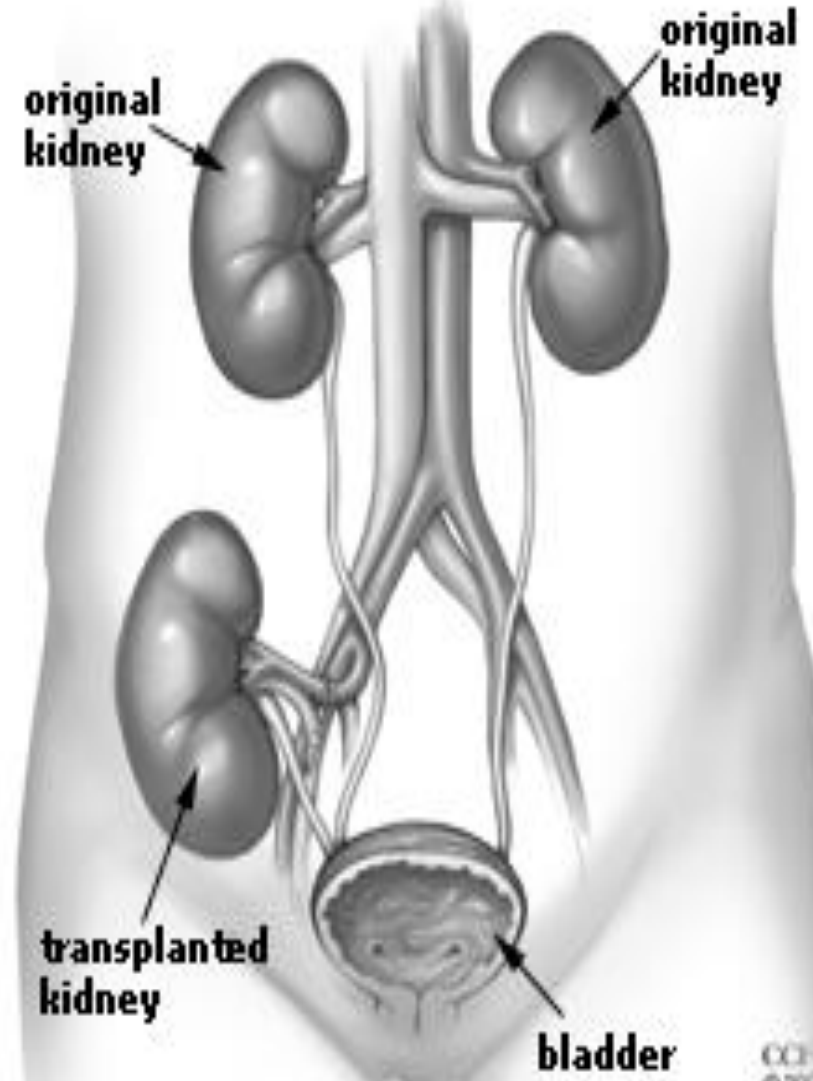
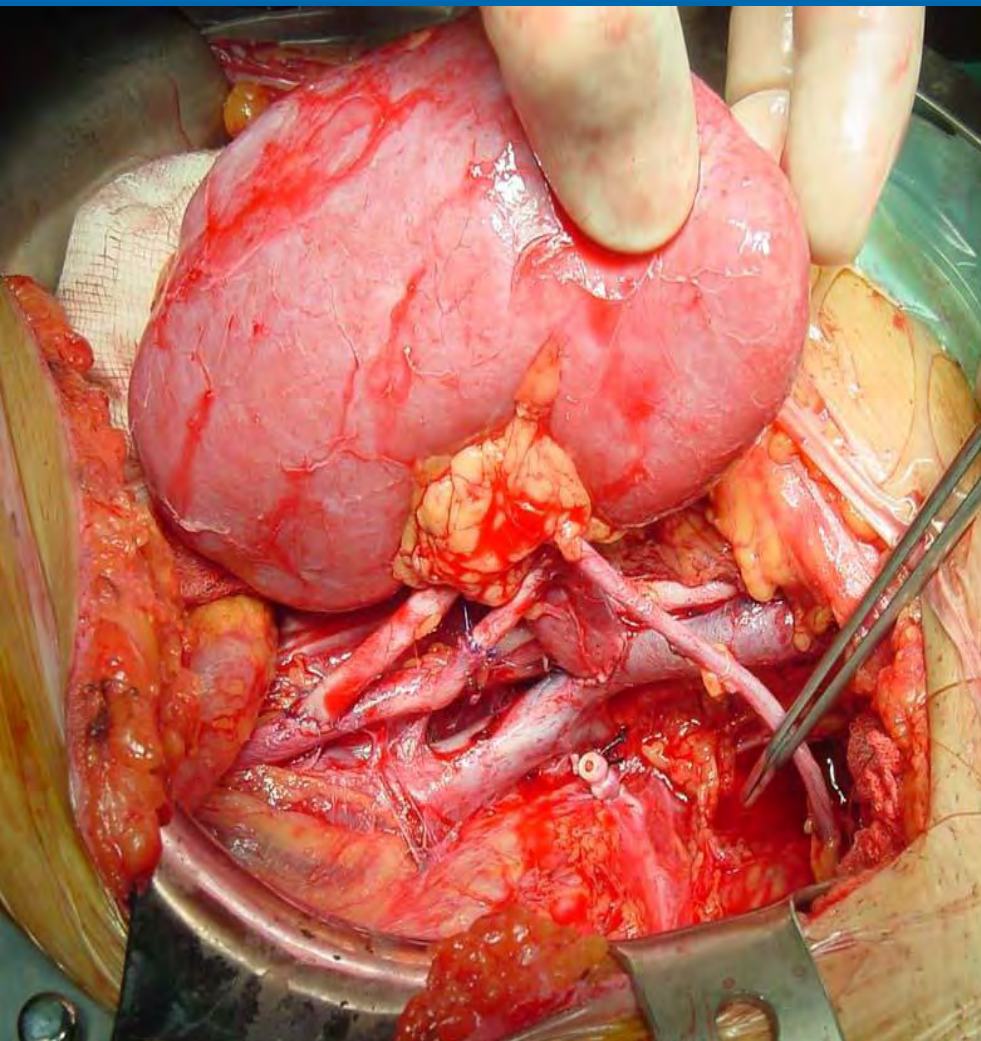


Böbreğin tekrar perfüzyonu



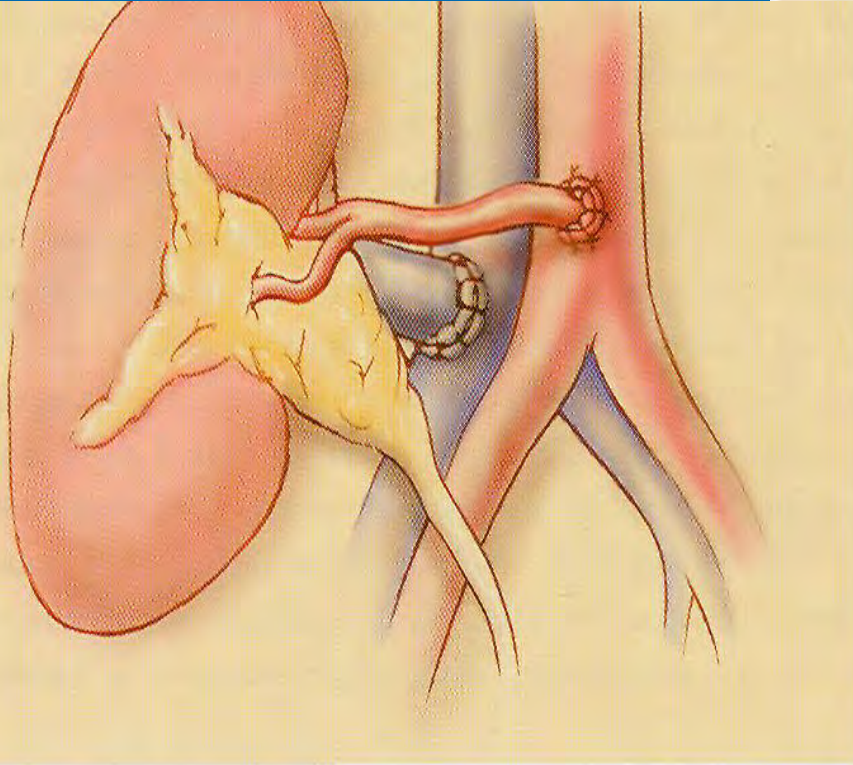
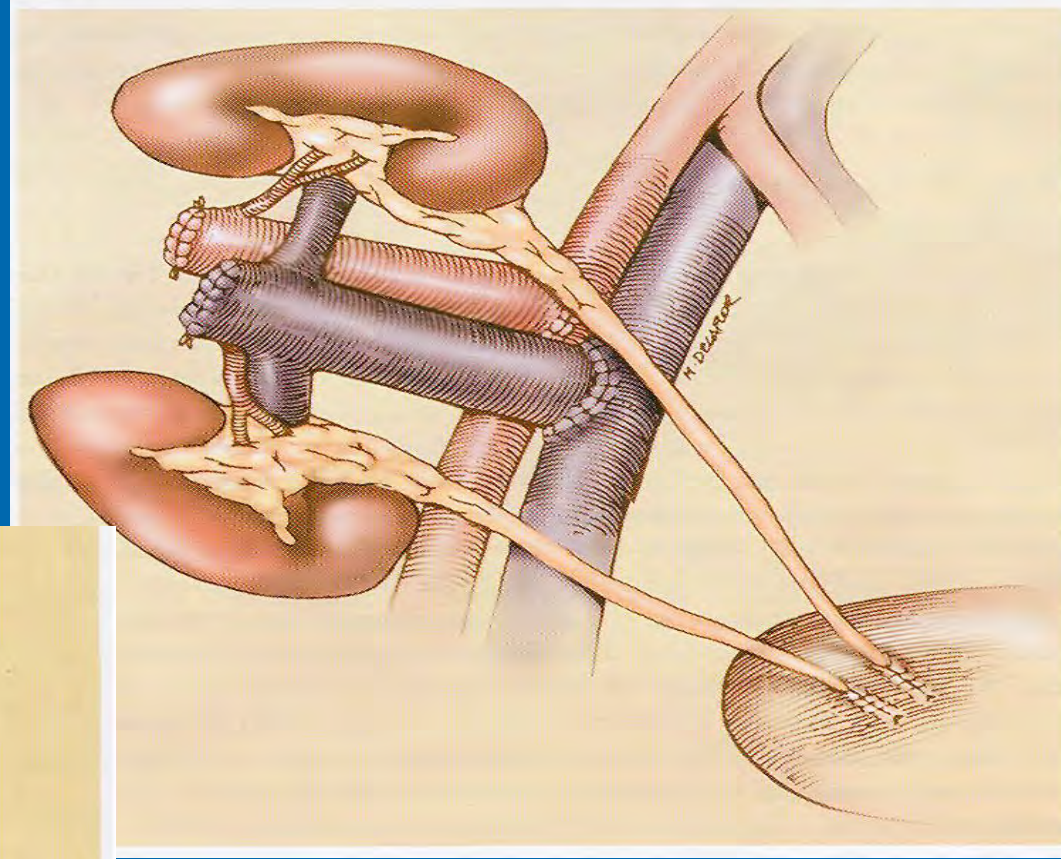
Üreter anastomoz





Çift böbrek Nakli (En-block)

Abdominal Damarlara Anastomoz



Böbrek Nakli Alıcı Ameliyatı



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BÖBREK NAKLİ ALICI AMELİYATI

İBRAHİM BERBER

ÖZEL ACIBADEM HASTAHANASI

Acıbadem Üniversitesi International Hastanesi Organ Nakli Merkezi

İlk böbrek nakli: 11.10.2010

Toplam nakil sayısı: 707 (Kadavra: 12)

Donör Ameliyatı

Açık: 47

Laparoskopik: 648

- Standart laparoskopik donör nefrektomi: 552
- Vajinal çıkarımlı Standart laparoskopik donör nefrektomi: 79
- Tek port donor nefrektomi: 11
- Vajinal çıkarımlı tek port donor nefrektomi: 6

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3-9 Kasım Organ Bağışı Haftası

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