

# Uterus Transplantation

**Ömer Özkan**

Akdeniz University Faculty of Medicine  
Department of Plastic and Reconstructive  
Surgery  
Antalya, Turkey

©TurkeyTravelPlanner.com

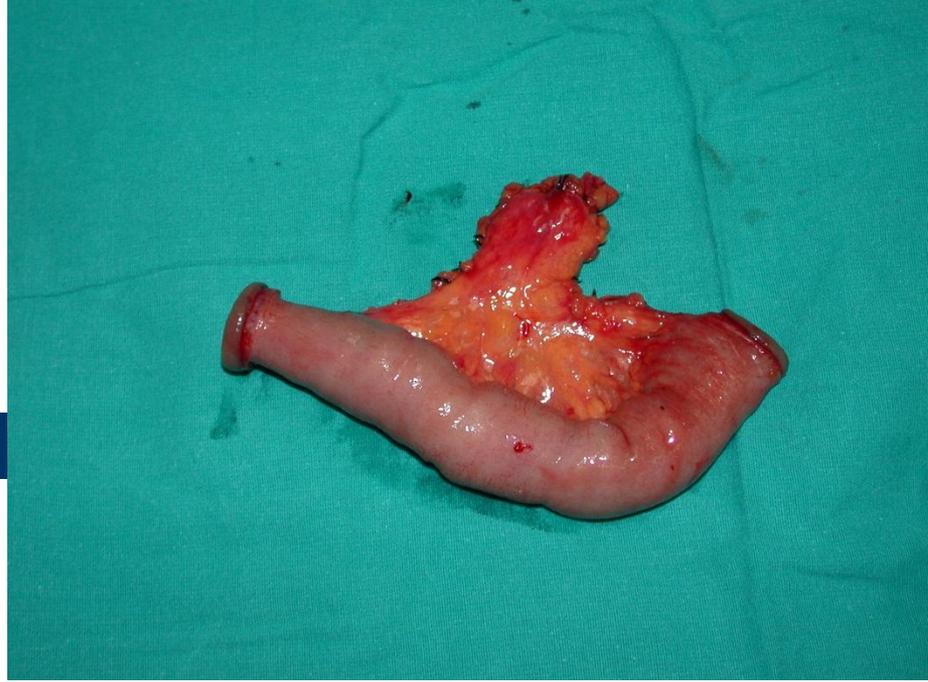






# Akdeniz University Hospital

- five face transplantations
  - (four total and one partial)
- two extremity transplantations
- More than 400 kidney transplantations/y
- 100 liver transplantations/y



# Uterus Transplantation

- **History**
- 1896, Knauer
  - Ovary transplantation
    - uterine otoplantation research
- 1964, Erslan, Hamernik and Hardy
  - First autotransplantation model in animal (dog,uterine)

- 2000, Saudi Arabia
  - uterine transplantation
    - Recipient; Hysterectomy after Postpartum hemorage
    - Live donor: Oophorectomy
- 99 day
  - Occlusion in anastomotic sides

- Animal model research
- Cadavary study
- Ethical evaluation
- Indications

- FSH, LH, and E2 levels
  - Normal and no difference in transplant patients
- 1958
  - First pregnancy in transplant patient
- Renal, liver, pancreas, cardiac, lung
  - Patient
  - Fetus

- Gonadal disfunction

- 6 months

- Waiting period

- 2 years, 1 year

- Stable transplanted tissue

- CMV infection

## Table I. Preconceptional Counseling Issues

---

Contraception and counselling optimal timing for pregnancy  
Continuation of immunosuppressant medication  
Folic acid\* and calcium# supplementations  
Performing rubella and varicella vaccination, if required  
Cervical cytology for screening cervical cancer  
Screening and treating anemia and infections

---

\*: 400 microgram/day

#: 1000 mg /day

**Table II.** Pregnancy complications

---

**Maternal complications**

- Chronic Hypertension
- Preeclampsia/Superimposed Preeclampsia
- Infection
- Diabetes
- Graft rejection and dysfunction

**Fetal complications**

- Fetal growth restriction
- Preterm labor
- PROM
- Low birthweight

---

PROM: Preterm rupture of membranes

- Spontan abortus
- Preterm delivery (%50, before 37 hf week)
  - Preterm membran rupture
- Intrauterine growth retardation

- Pregnancy
  - Immunosuppressive state
  - Systemic immunity

**Table 3.** FDA category of Immunosuppressive Agents Used in Transplant Recipients

<b>Immunosuppressive Agents</b>	<b>FDA category</b>
Corticosteroids	B
CyA	C
Tacrolimus (FK 506)	C
AZA	D
MMF	C
Sirolimus	C
ATG	C
Muromonab-CD3	C
Daclizumab	C

FDA: Food and Drug Administration (United States)

CyA: Cyclosporine-A

AZA: Azathioprine

MMF: Mycophenolate mofetil

ATG: Antithymocyte globulin



## **Composite Tissue Transplantation Centers Registry**

**(SB 29.03.2011 and 13984 number established)**

---

This registry is maintained for the regulation of transplantation centers

The duty of the staffs of this tx centers is regulated by this registry

The tissues which originated from any embryologic layers like intestine, trachea, larynx, are included in this registry

Liver, kidney, lung, pancreas, heart, cornea and bone marrow tx are excluded from this registry

## ● **Criteria for donor selection**

- Healthy volunteers younger than 45 years old
- Multipar, carries similar criterias for kidney transplantation donor volunteers
- Brain death with hemodynamic stability
- Minimal comorbidity before death
- Normal level in rutine blood tests
- Matched blood type/ HLA type
- Human Papilloma Virus (HPV) Negative
- Cytomegalovirüs (CMV) negative
- HIV (AIDS) Negative
- Negative viral hepatitis
- Identification of absence of myoma or vascular anomally

## ● Indication for uterine transplantation

- Infertility related to uterus
- Desire for uterine transplantation
- Medically Impossible to have a baby
- Congenital uterine agenesis
- Resection of uterus because of hemorage,trauma except malign tumours
- Be aware of long time postoperative rehabilitation
- 18 – 45 age
- Have no major trauma or surgery for negative effect of outcomes
- Healthy organs and systems
- Psychosocial stability
- Whole healthy who has no limitation for taking immunosupresive agent
- Informed concern about all adverse effect of immunosupresive agents



# Recipient

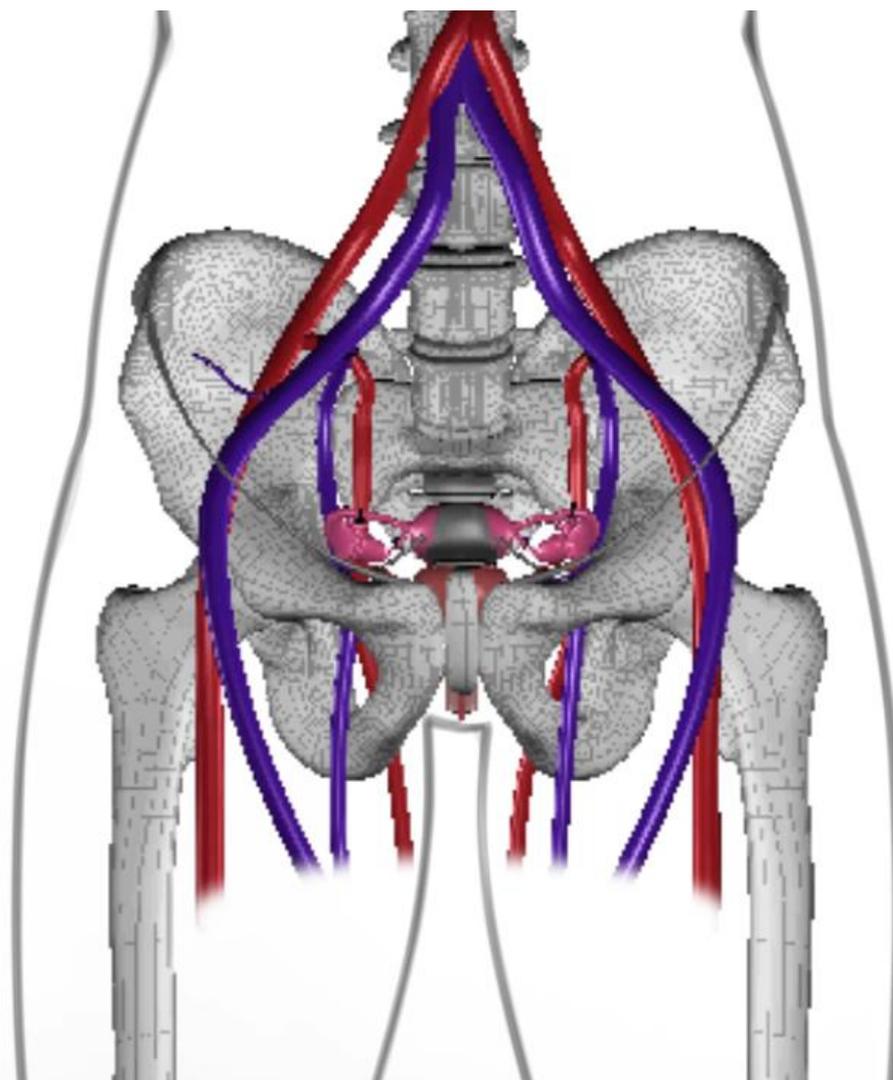
- 21 y f
  - RKMHS
  - Vagina reconstruction with intestine segment 2,5 years ago
- Rutin pretransplantation evaluation
- Embrions obtained before tx
- Stabile family life
- Mental stability
- Good general condition
- Informed concent

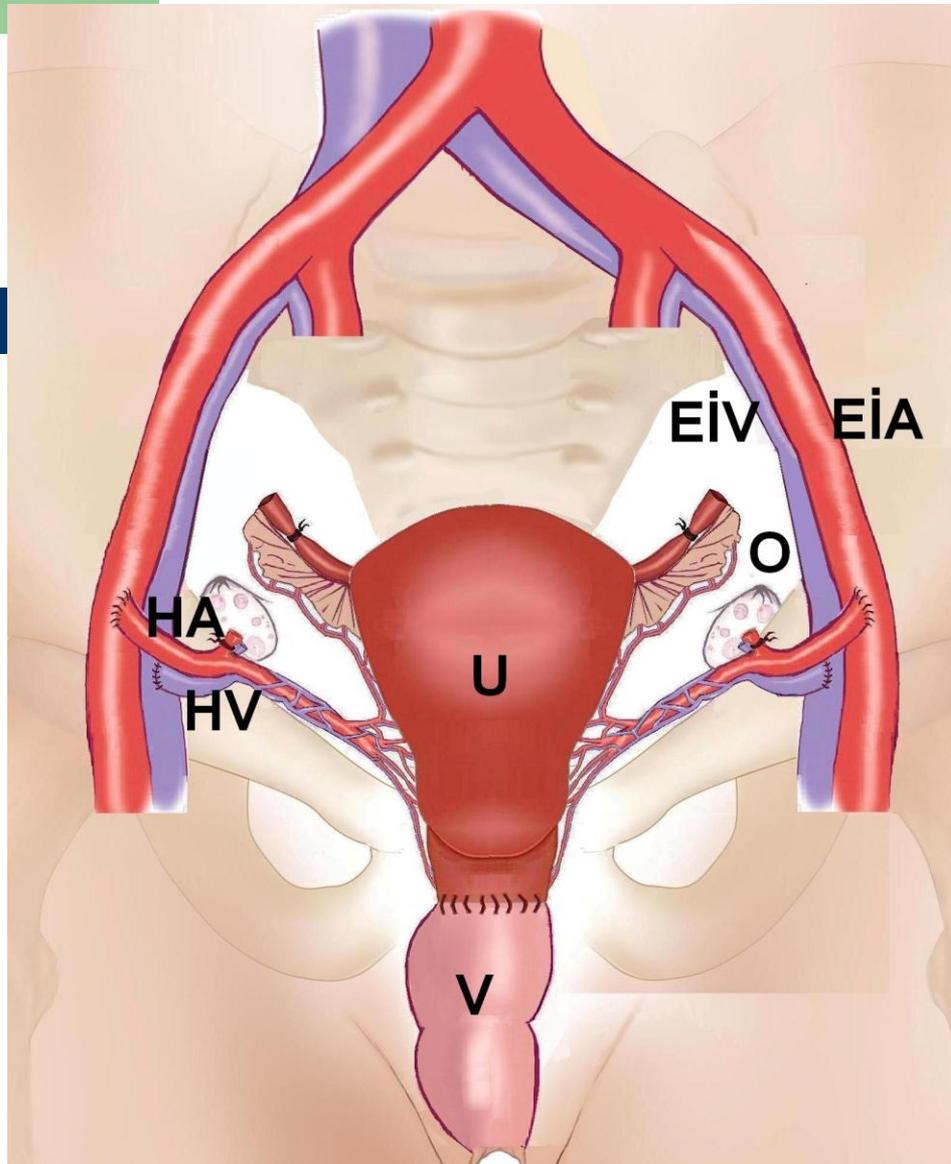
# Donor

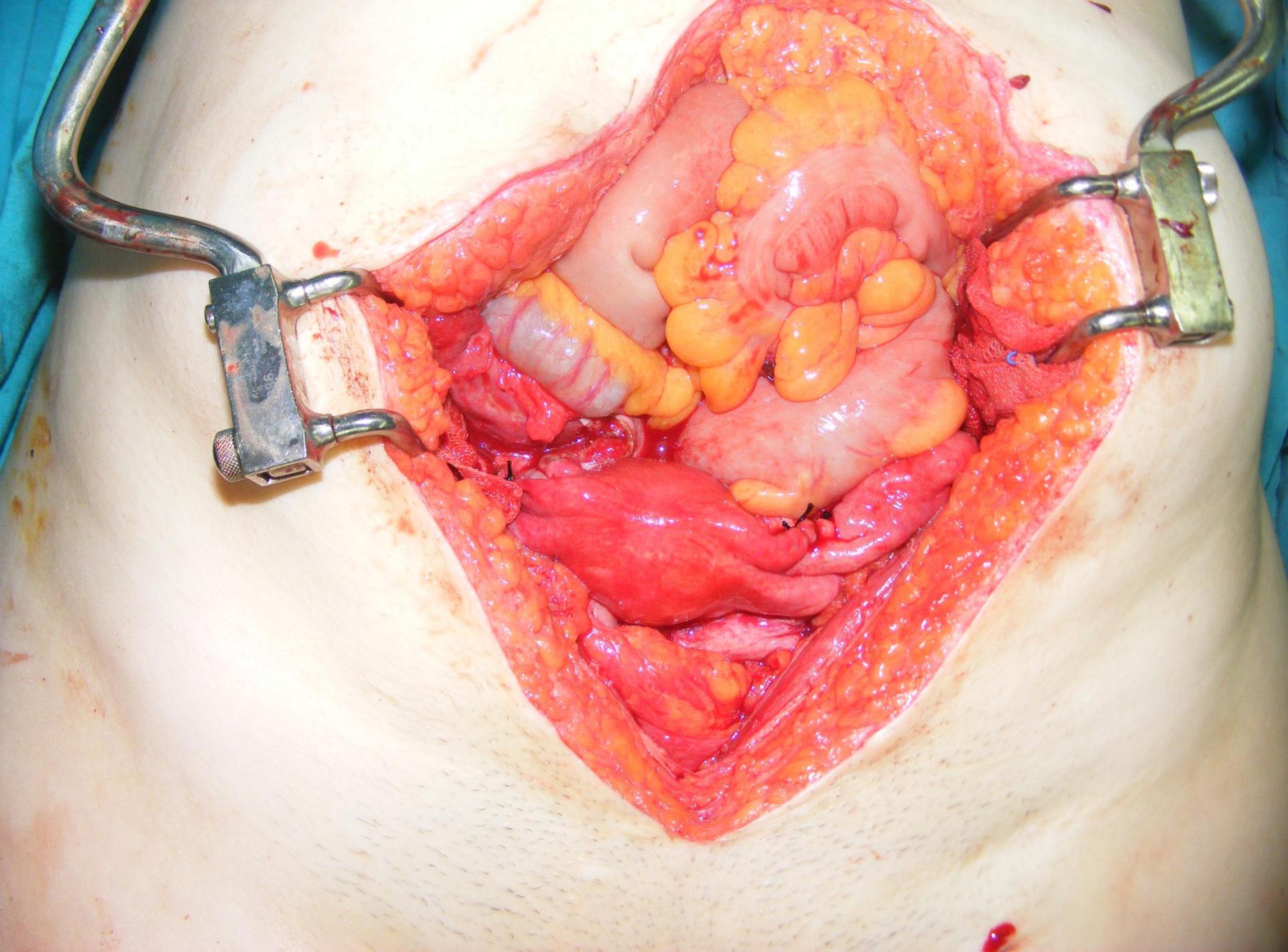
- August, 2011
- 21y
  - Traffic accident
- Multiorgan cadaver donor
- Donor-recipient matched blood type
- 3 HLA A, B, DR matched



- Eksternal iliac arteries and veins and Uterine arteries and uterin veins  
End to side anastomoses
- Sakrouterine ligament
- Round ligament
- Vagino-neovaginal anastomoses
- Vesicouterine peritoneal reflection

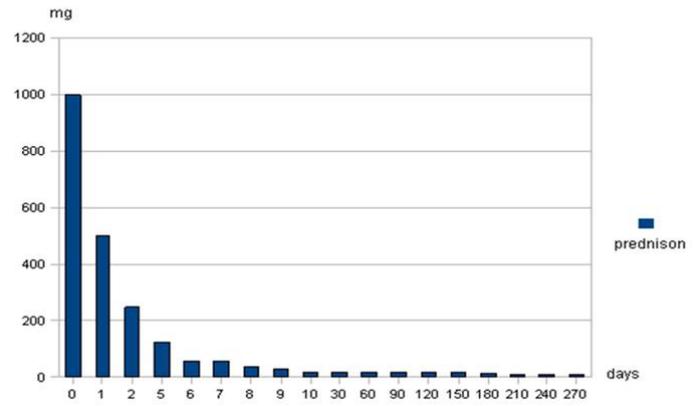
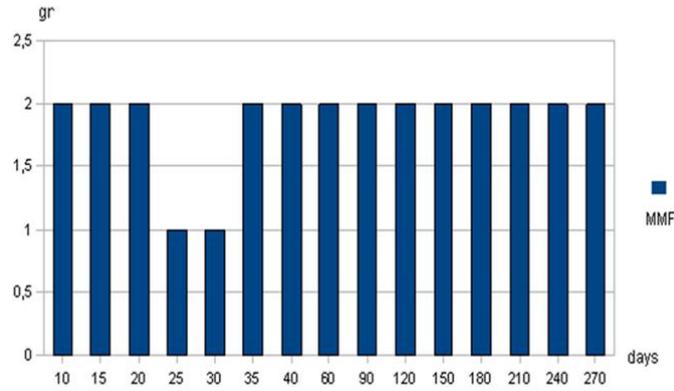
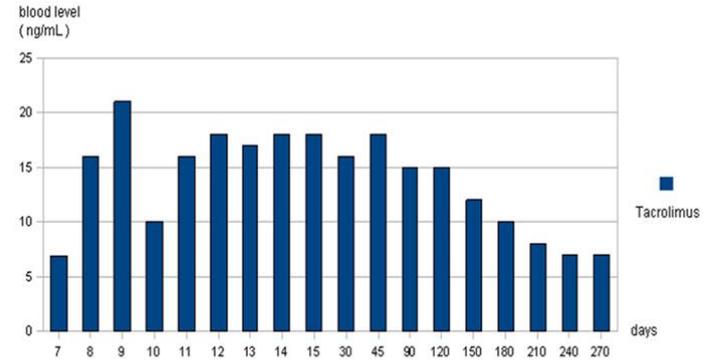
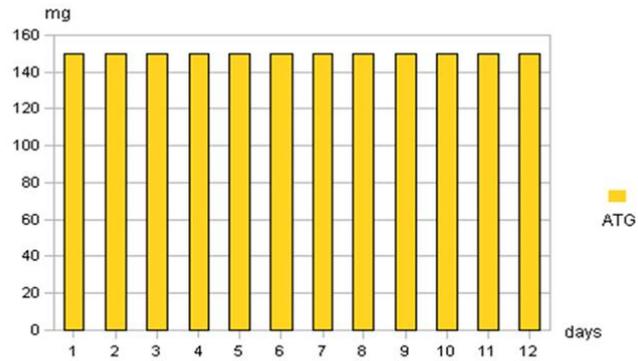






# Immunosuppressive protocol

- Induction phase
  - ATG: 100-300mg/day for 10 days
    - prednisolone: 1000 mg IV on day 1; then slowly tapered to 20 mg/day
- The maintenance
  - tacrolimus (Prograf, 0.2 mg/kg/day with blood levels between 15 and 20 µg/ml in the first month, 12-15 µg/ml in the second month )
  - Mycophenolate mofetil (Cell Cept, 2 g/day)
  - prednisolone: 10 mg/day

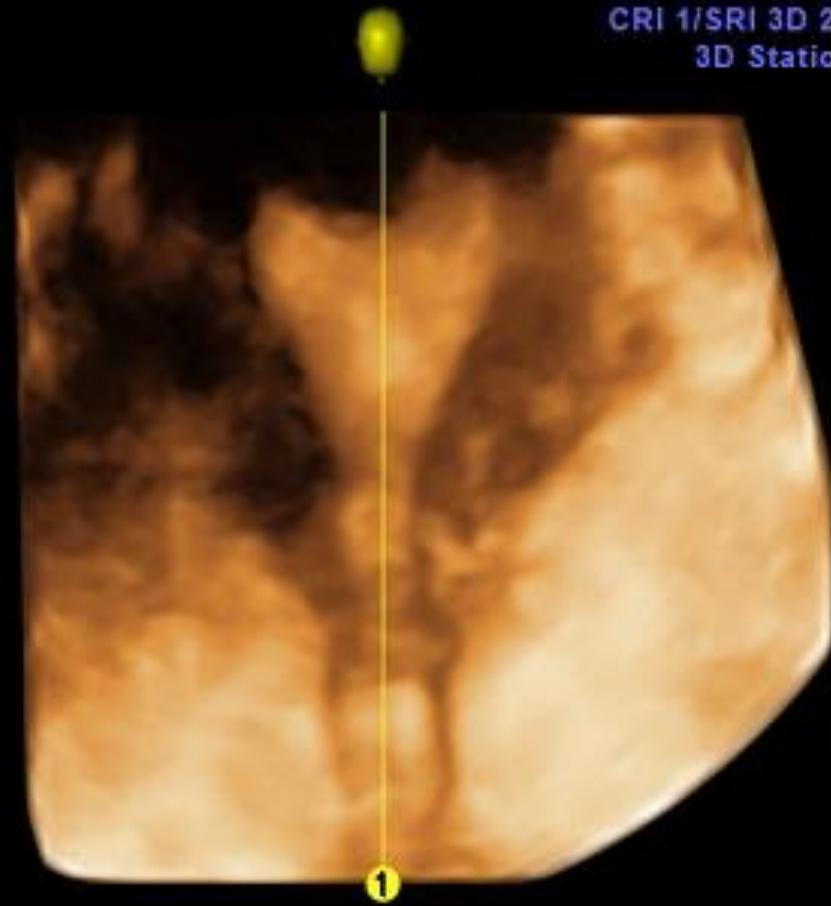
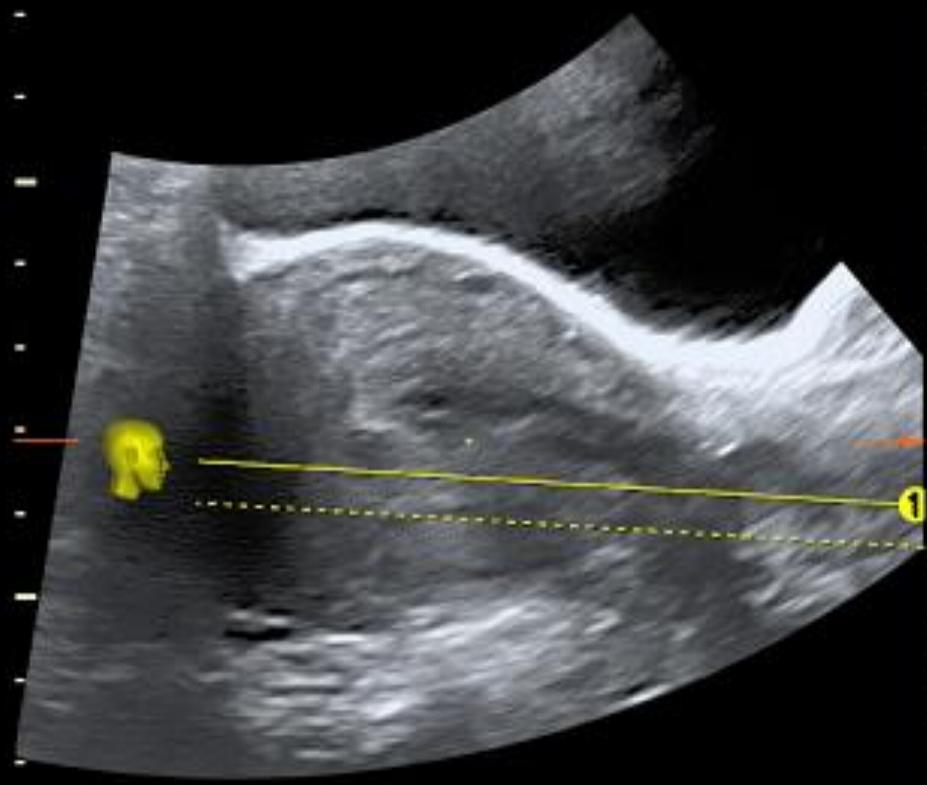


- Wide spectrume AB  
first 10days
- sulfadoxine pyrimethamine  
*Pneumocystis carinii* pneumonia.
- CMV profilaxis
- Valgancyclovir
- GVH (-)

- Complication due to surgery (-)
- Wound healing
- Circulation
- Sentinel skin

- Rejection (-)
- Skin bx
  - normal histopathological findings
- Metabolic or inf complication (-)

DEFAULT  
Th30/Qual max  
B51°/V55°  
Mix70/30  
S5mm  
CRI 1/SRI 3D 2  
3D Static





RAB 2-5L/OB

MI 1.3

AKDENİZ UNV. TIP FAK.

10.0cm / 7Hz

TIs 0.2

27.12.2011 09:10:57

2+3.Trim.

Har-low

Pwr 100 dB

Gn -12

C6 / M5

P3 / E3

SRI II 3

Pwr 100 dB

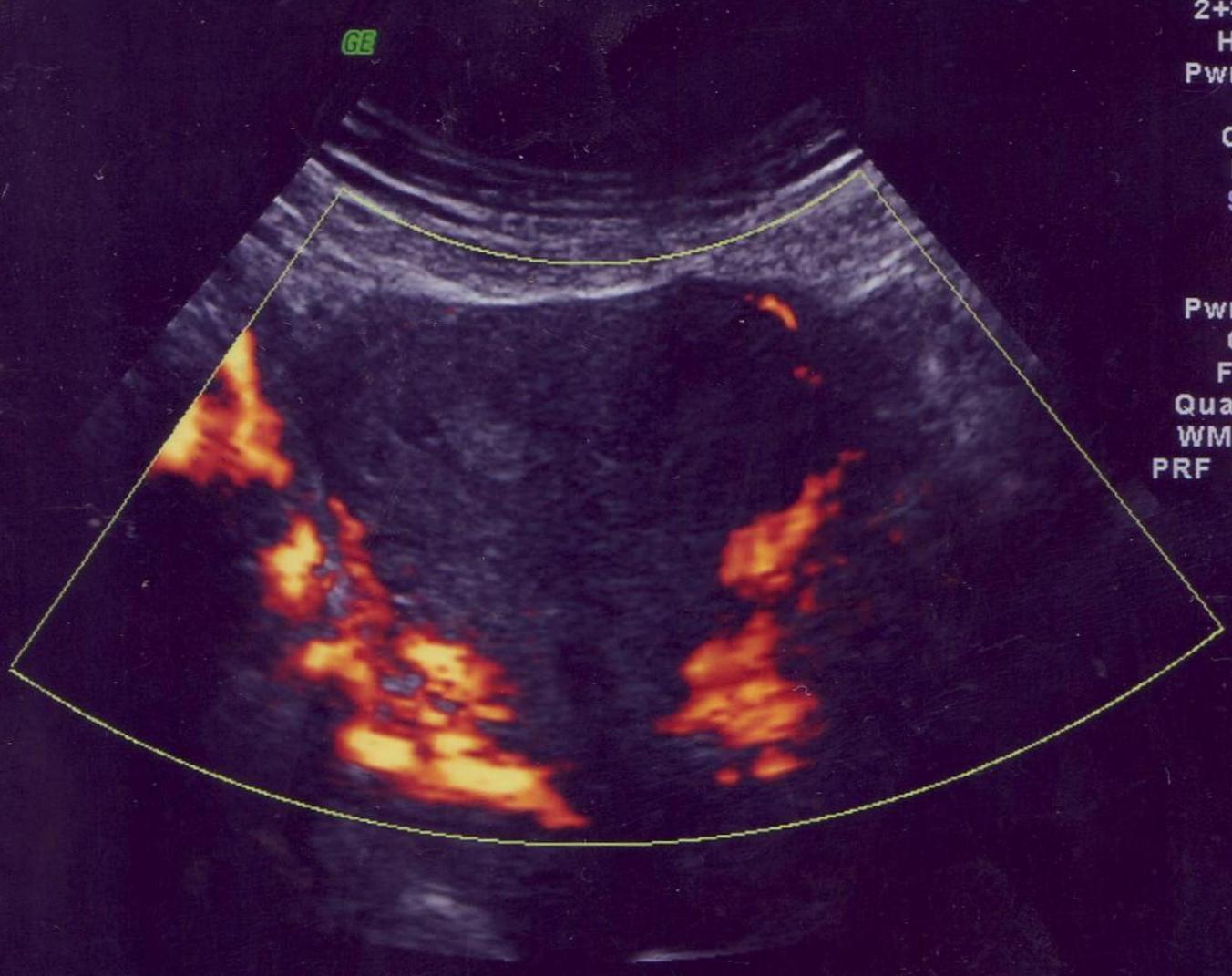
Gn 3.2

Frq mid

Qual norm

WMF low2

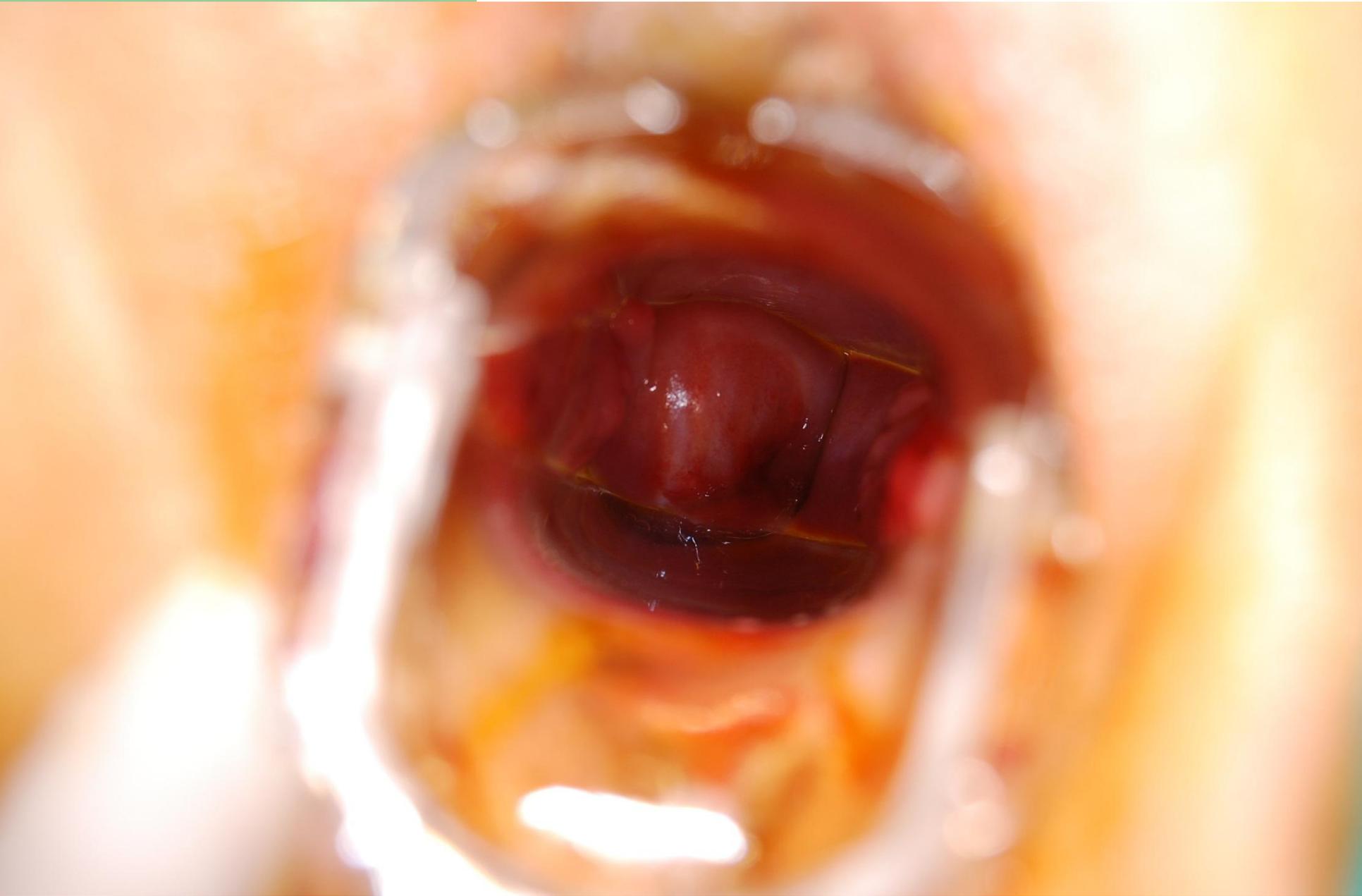
PRF 0.9kHz

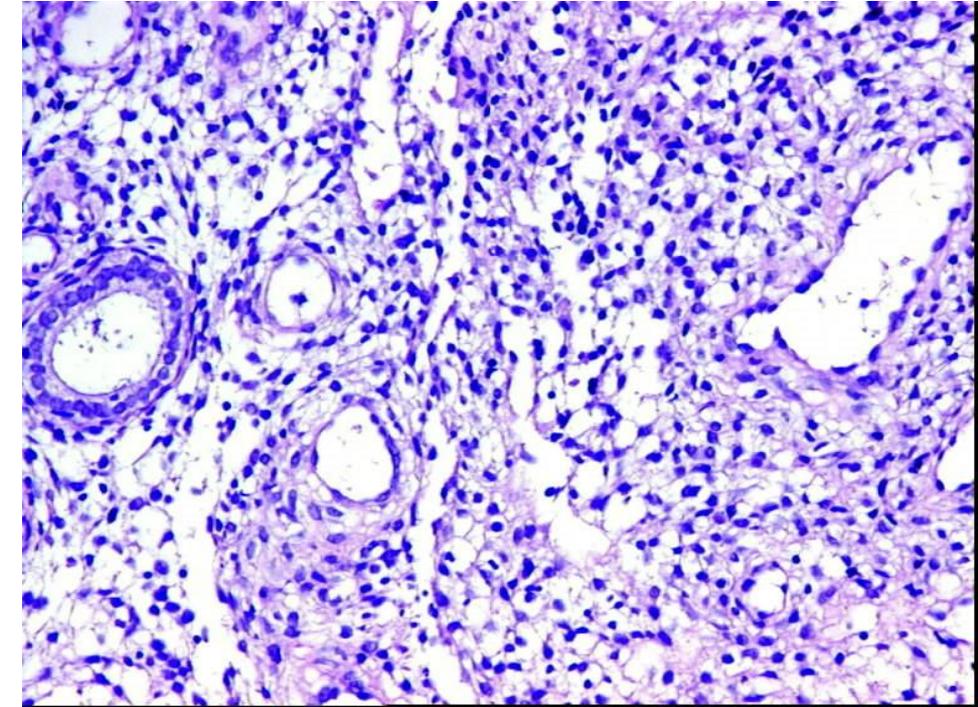
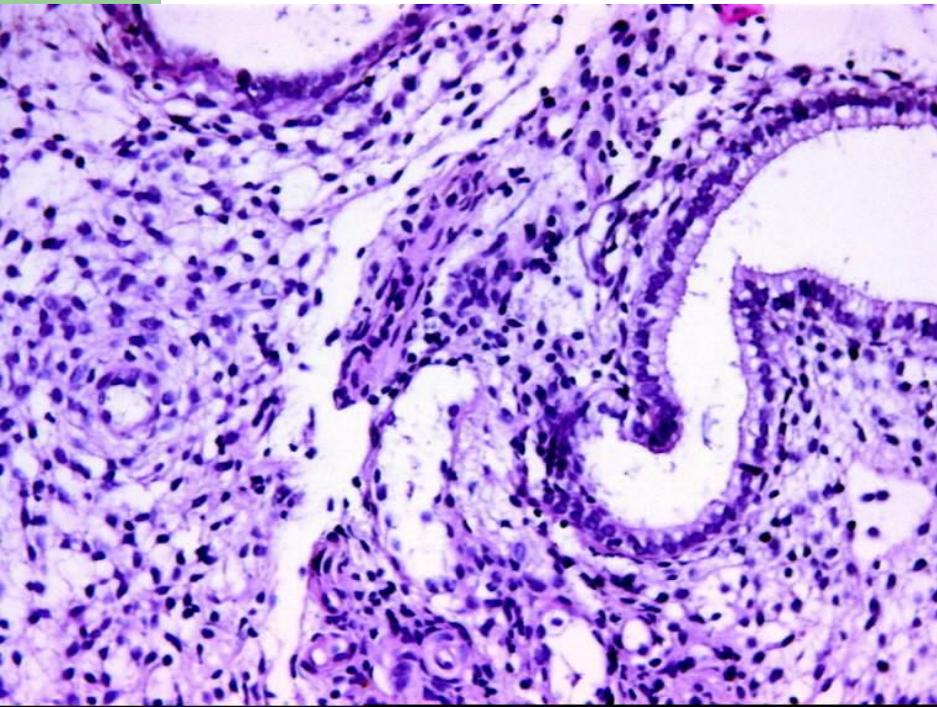
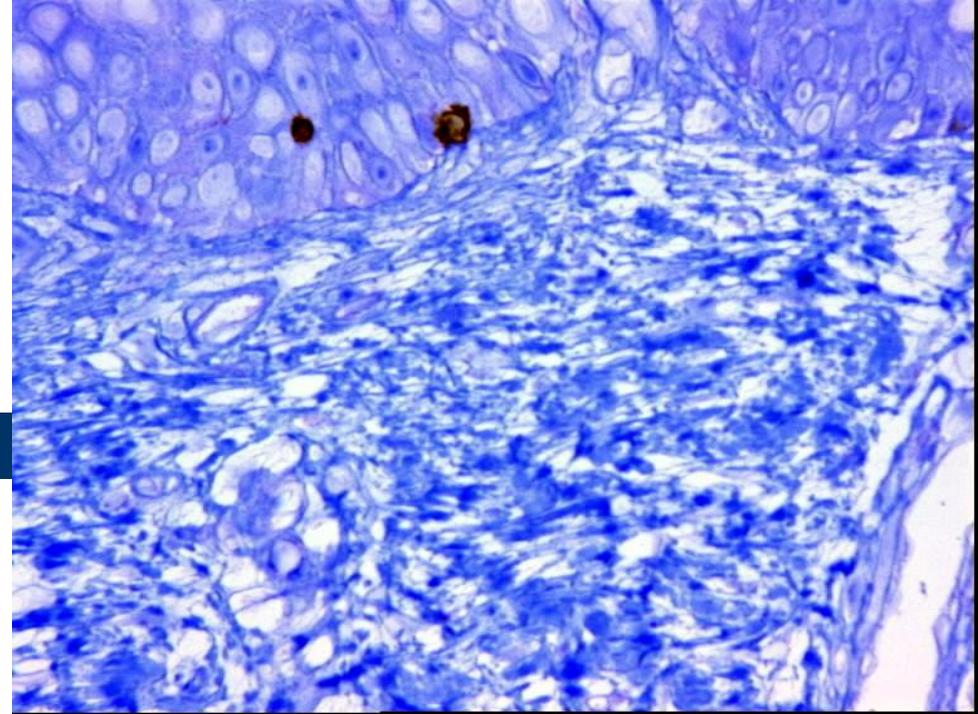
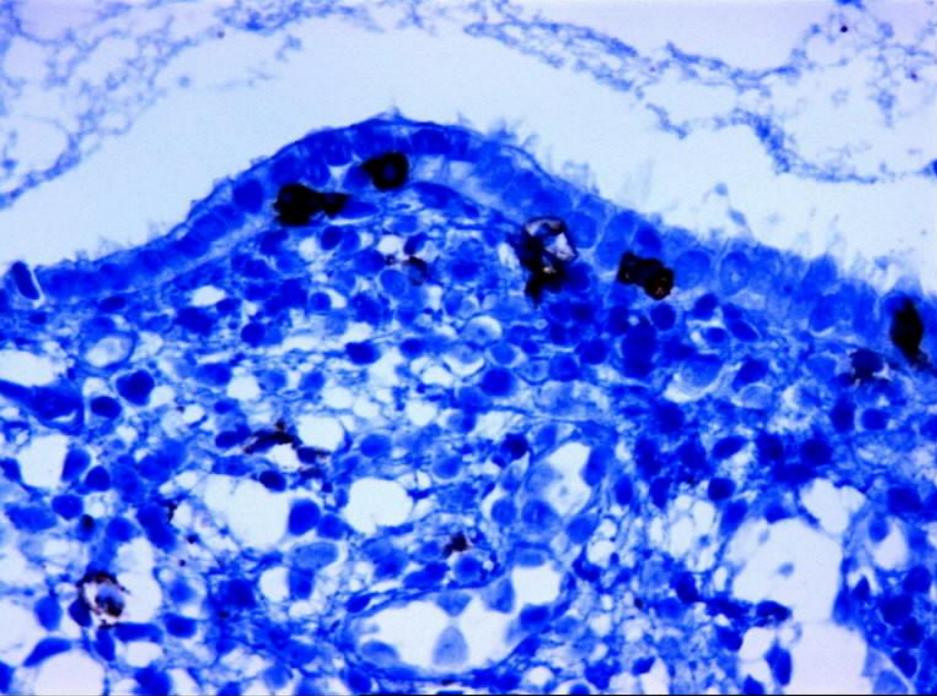


Cine 59

Cine/pos

9.5 sec





Voluson

EB

Exp

, derya \*

RAB6-D/OB

MI 1.2

Doç.Dr.Mehmet SIMSEK

D15770-13-04-20-9

14.0cm / 2.0 / 19Hz

Tlb 0.7

20.04.2013

9:08:37PM

Voluson  
EB

DEFAULT

Har-high

97

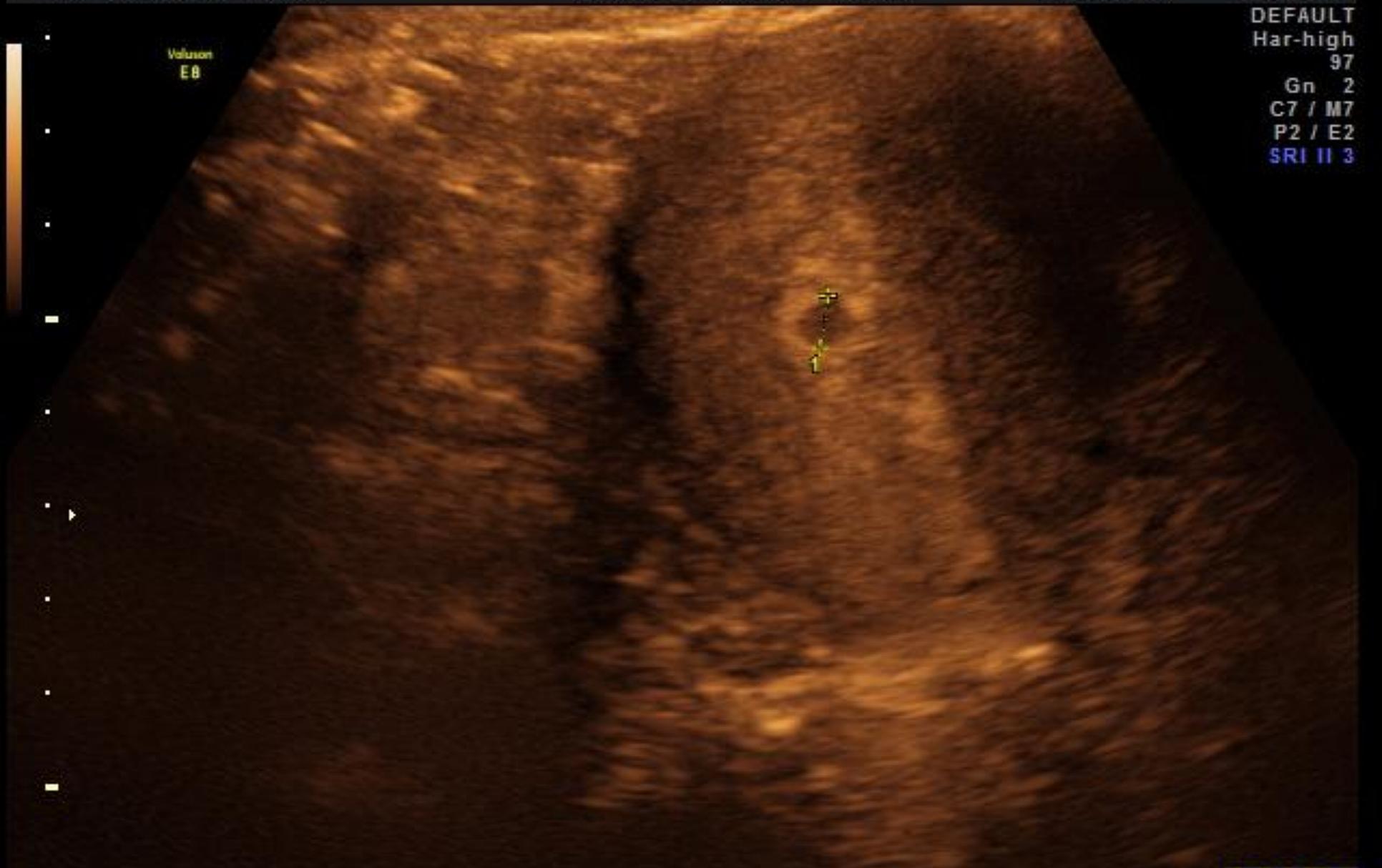
Gn 2

C7 / M7

P2 / E2

SRI II 3

1 D 0.57cm



Voluson EB

DEFAULT  
Har-high  
97  
Gn 8  
C7 / M7  
P2 / E2  
SRI II 3



1 D 0.70cm  
CRL 0.28cm  
GA 5w6d

Voluson

EB

Exp

sert, derya \*

RAB6-D/OB

MI 1.1

Doç.Dr.Mehmet SIMSEK

D15770-13-04-20-9

11.8cm / 2.6 / 94Hz

Tlb 0.5

08.05.2013

10:46:34PM

Cardiac

Har-low

97

Gn 1

C8 / M4

FF2 / E2

SRI II 4 / CRI 3

Voluson  
EB

CRL

CRL 1.41cm

GA 7w5d



Sert, Derya

15829-13-04-28-1

RAB 2-4/0B

8.3cm / 164Hz

MI 0.8

TIs 0.2

AKDENIZ UNV. TIP FAK.

28.04.2013 10:50:00

Fetal Cardio

Har-mid

Pwr 100

On 1

C9 / M7

E2

PR01 3 / CR1 3

CR1

CR1 3.25mm

GA 6w0d



Sert, Derya

15829-13-04-28-1

RAB 2-5LJOB

8.3cm / 164Hz

MI 0.8

TIs 0.2

AKDENIZ UNV. TIP FAK.

28.04.2013 / 10:50:00

Fetal Cardio

Har-mid

Pwr 100  $\mu$

Gn 1

C9 / M7

E2

5/0/3 / CRI 3

BT

CRI

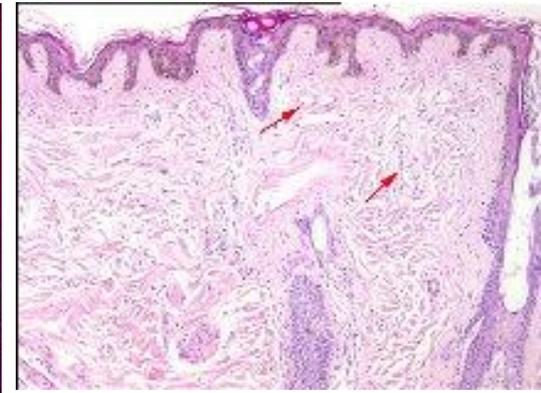
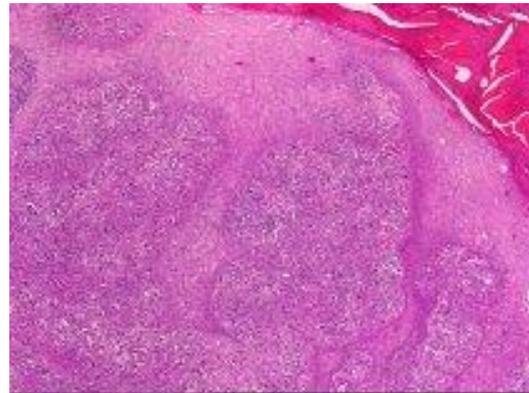
CRIL 3.26mm

GA 6w0d

## Conclusions

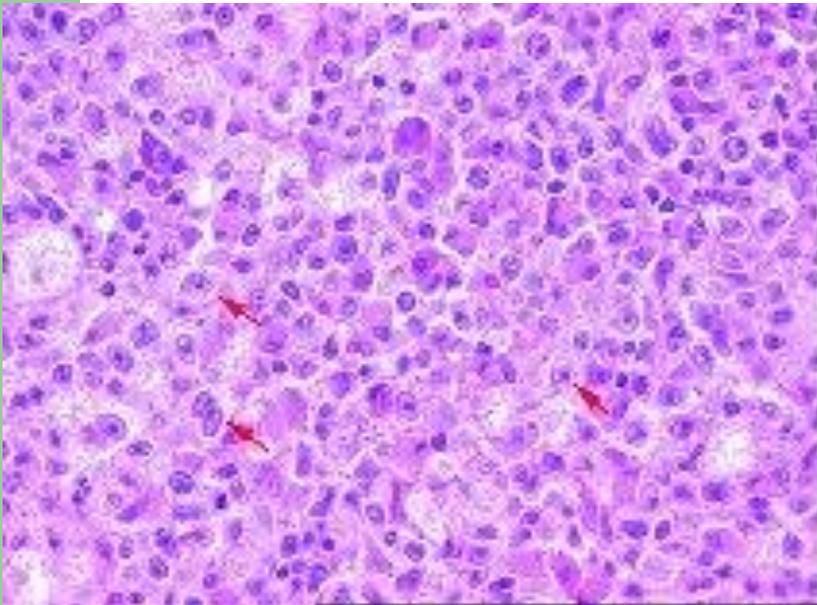
- use of immunosuppressive drugs
  - Malignancy
    - non-melanoma skin cancers
      - squamous cell carcinoma
      - closely associated with level of immunosuppression
      - withdrawal or decrease in immunosuppression
  - Post-transplant lymphoproliferative disorders (PTLD)
    - more aggressive behavior
    - less responsive to conventional treatment
    - outcomes are generally poor
    - wide spectrum of disorders ranging from benign hyperplasia to aggressive non-Hodgkin's lymphoma (NHL).
    - Mostly associated with Epstein Barr virus (EBV).
    - Proper match of the EBV is crucial to reducing the risk of PTLD
    - reducing or withdrawing immunosuppression

- Five months after face tx,
  - SCC on the dorsum of the left hand and the right pretibial regions.

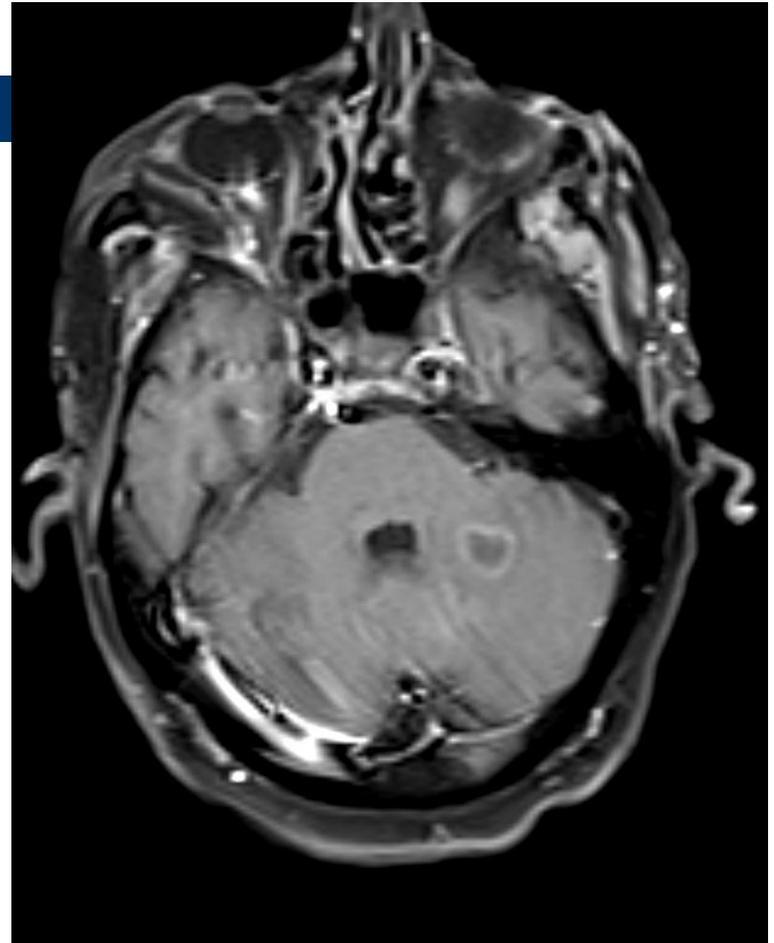


- One month later (6 months postoperatively)
- rapidly growing 2x2 cm ulcerative nodule (lymph node) in the left preauricular region
  - CD-20 positive diffuse large B cell lymphoma
  - PET-CT scan and bone marrow biopsy
    - unilateral inguinal lymph node.

- Chimerism analysis revealed fully autologous signals of recipient origin.
- Stage IIIA non-Hodgkin lymphoma (NHL)
  - Reduction of immunosuppressive treatment
  - R-CHOP regimen (rituximab, cyclophosphamide, adriamycin, vincristine and prednisolone)



- Control PET scanning
  - A high active area in the right cerebellum
  - MR imaging
    - cerebellar aspergillosis (central nervous system lymphoma??)
    - developed ataxia during walking concordant with the cerebellar lesion
- The immunosuppressive agents were stopped completely



- The dosage and length of ATG
- Informed of the greater risk of opportunistic infections and malignancies

- High risk of life-threatening fungal infection

- Candida

- Aspergillus

- involve nearly all organs

- nonspecific clinical manifestations

- early detection is almost impossible

- usually diagnosed when it is already well disseminated

- associated mortality rates can be as high as 100%.

- early detection is crucial for the administration of effective antifungal treatment

- removal of infected original lesions.

- The risk is especially high in patients using steroid therapy

- Adjustment of immunosuppressive drugs

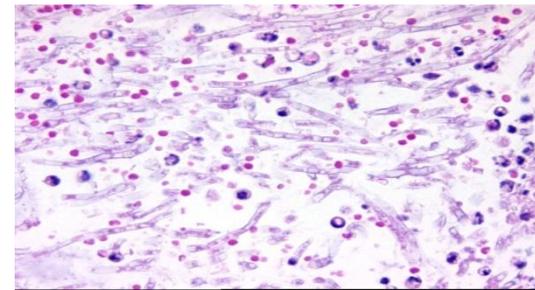
- lowering or even stopping them entirely may be life-saving.

- Unidentified clinical signs or pathological findings in system investigations

- pulmonary

- central nervous system

- renal involvement



- Semra Kahraman
- Ozlenen Ozkan
- Munire E. Akar
- Batı Aydınuraz
- Okan Erdođan
- Mehmet ŐimŐek
- İnanç Mendilciođlu
- Necmiye Hadimiođlu
- Ömer Geçici
- Ayhan Dinçkan
- Huseyin Koçak
- Filiz Günseren
- Nilgün Keçeciođlu

# Thank you

