

A scenic view of a harbor at sunset. The sky is a mix of light blue and orange, with the sun low on the horizon. The water is dark, and many sailboats are visible. In the foreground, there are silhouettes of trees and a building.

# Cervical cancer – fertility preserving surgery

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## CIN2/3

43% of CIN2, 35% of CIN3 regress

35% of CIN2, 55% of CIN3 persist

22% of CIN2, 14% of CIN3 progress

CIN 3 progression to cancer 12-36%

BUT UNDER 25, LESS THAN 1 in  
1MILLION

## **Cold knife**

RR 2.59 for preterm delivery

RR 2.53 for birthweight under 2500g

RR 3.17 for caesarean section

RR 1.89 for perinatal mortality

## **LLETZ**

RR 1.7 for preterm delivery

RR 1.82 for birthweight under 2500g

RR 0.88 for caesarean section

RR 3.4 for perinatal mortality

# Cervix cancer after previous colposcopy

- Although increased risk, still only lead to <8% of cancers
- Vast majority diagnosed by screening rather than symptoms
- Risk persists over many years
- Apparent: downstaging and higher chance of fertility preservation
- Clear survival benefit

# Cervical cancer

Second most common cancer in women

1000 women under 40 diagnosed with cervical cancer each year (Cancer Research UK)

Treatment to date for stage 1b disease – radical hysterectomy plus bilateral lymph node dissection  
= infertility

5yr survival rate of 80-90%

# Incidence of cervical cancer by age

	Age 20-24	Age 25-29	Total
1995	33	183	2800
2000	48	164	2200

Incidence of cervical cancer in pregnancy 1.2:10000

# Staging for cancer of the cervix

In general terms:

- Stage I Confined to the cervix
- Stage II Local spread
- Stage III Spread throughout abdomen/nodes/cytology
- Stage IV Either bladder/rectal mucosal involvement or distant spread

## Carcinoma of the cervix uteri

**Stage I The carcinoma is strictly confined to the cervix (extension to the corpus would be disregarded)**

Ia Invasive carcinoma which can be diagnosed only by microscopy, with deepest invasion  $\leq 5$  mm and largest extension  $\geq 7$  mm

Ia1 Measured stromal invasion of  $\leq 3.0$  mm in depth and extension of  $\leq 7.0$  mm

Ia2 Measured stromal invasion of  $>3.0$  mm and not  $>5.0$  mm with an extension of not  $> 7.0$  mm

Ib Clinically visible lesions limited to the cervix uteri or preclinical cancers greater than stage Ia2

Ib1 Clinically visible lesion  $\leq 4.0$  cm in greatest dimension

Ib2 Clinically visible lesion  $> 4.0$  cm in greatest dimension

**Stage II invasion beyond uterus, but not to pelvic side wall or lower 1/3 vagina**

Ila no obvious parametrial involvement

Ilb obvious parametrial involvement

**Stage III extension to pelvic side wall. On rectal examination there is no cancer free space between tumour and pelvic wall. The tumour involves the lower 1/3 of vagina. All cases with hydronephrosis or non-functioning kidney are included, unless due to another cause**

IIIa involves lower 1/3 of vagina. No extension to pelvic side wall

IIIb extension to pelvic side wall +/- or hydronephrosis or non-functioning

kidney

**Stage IV extension beyond true pelvis or biopsy proven bladder or rectal involvement**

IVa spread to adjacent organs

IVb spread to distant organs

# Cervical Cancer Treatment

- Primary surgical treatment
  - Should not be used if radiotherapy is also going to be needed
  - Decisions should be made by cancer centre MDTs
  - Local excision sufficient for stage 1ai or 1aii disease.

## Stage 1ai Cancer

- Low risk of lymph node metastasis
- Low risk of recurrence
- Less than 1% risk of these
- Treatment is to adequately excise the tumour
- LLETZ = fertility preservation

## Stage 1aii Cancer

- Low risk of nodal metastasis if no LVSI
- Low risk of recurrence
- Less than 5% risk with no LVSI
- Treatment is to adequately excise the tumour
- LLETZ = fertility preservation

**THE MAIN AIM OF THE  
SURGERY MUST BE -**

**TO TREAT THE CANCER**

Changes to practice should not compromise  
the chance of cure (95% in stage 1b node  
negative disease)

# Stage 1bi Cancers

- Higher risk of nodal disease
- >5% risk of nodal involvement
- Treatment of choice is –
- Radical abdominal hysterectomy
- Pelvic lymphadenectomy
- Ovaries do not need to be removed with SCC

# Radical vaginal trachelectomy

D'Argent et al (1994):

“Trachelos” - Greek “cervix”

“Radical” removal of cervix and parametrial tissues

Modified by Shepherd et al (1998)

Leaving body of uterus and ability to conceive intact

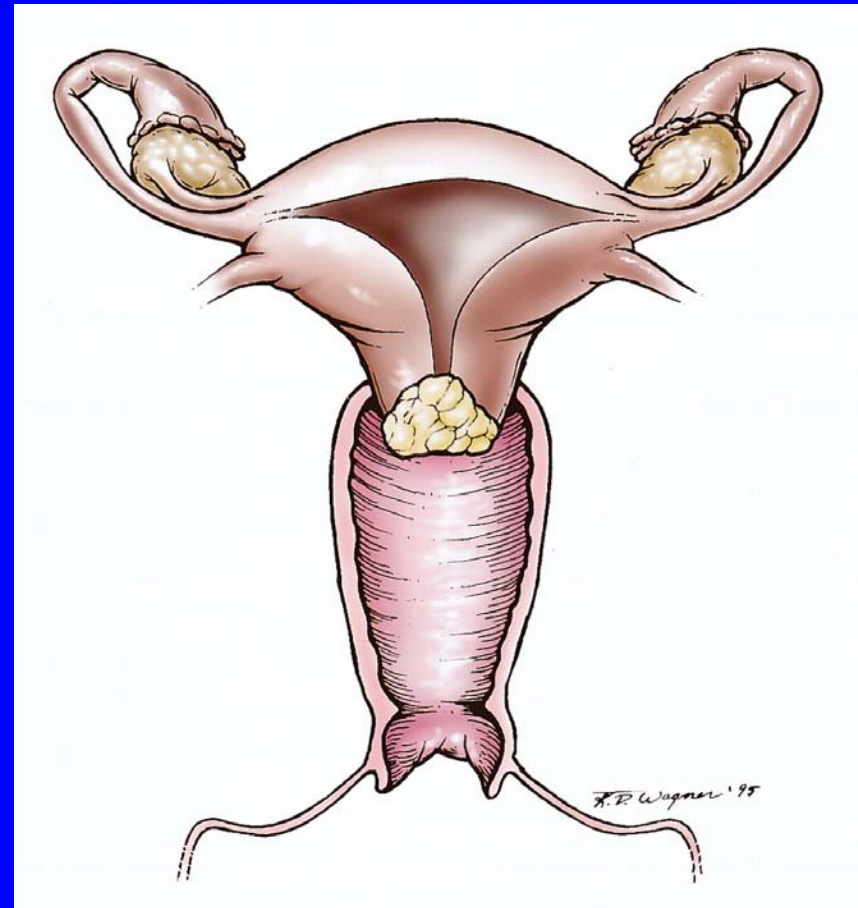
Qualification:

Cervical Cancer – **FIGO stage**

**1b1** – Small volume (<2cm diameter) with no extension to the parametrium or endocervix

Does not involve lymph node metastases

Recurrence low - >95% 5 year survival

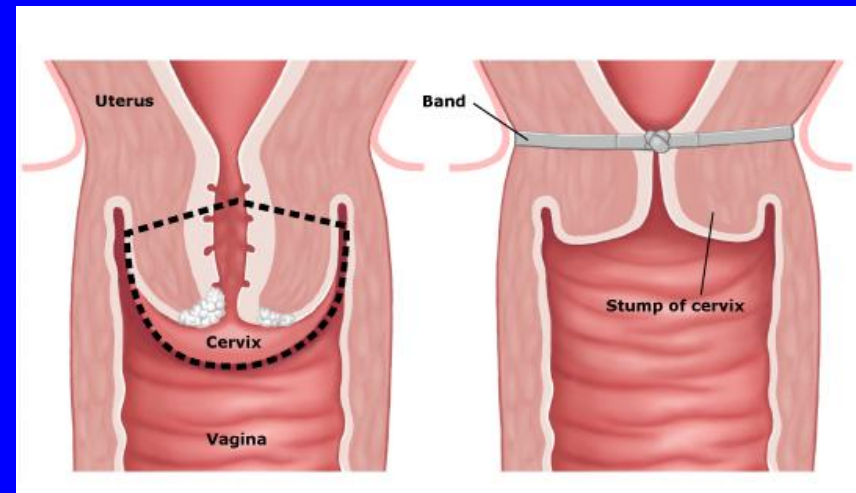


# Radical vaginal trachelectomy

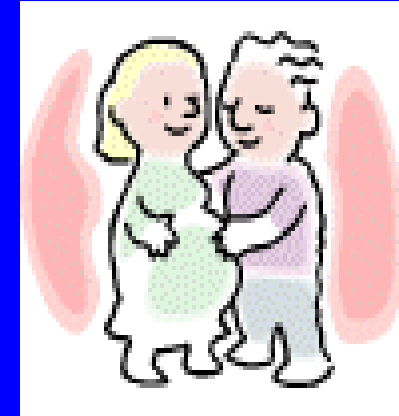
- Accurate staging and MRI

## Procedure

- Laparoscopic pelvic lymphadenectomy
- Dissection of paravesical, rectovaginal, and vesicovaginal spaces
- Radical wide local excision of early stage tumour
- Insertion of isthmic cerclage 'purse string'
- Isthmic vaginal anastomosis



# Obstetric Management



- 790 VRTs worldwide
- 300 pregnancies - 195 successful live births
- Very few studies report obstetric management after trachelectomy
- Risks:
  - Premature Labour
    - Cord prolapse
    - Breech presentation
    - Uterine rupture
  - PPROM
  - 2<sup>nd</sup> trimester miscarriage

# Case 1

- 31y, nulliparous
- Poorly differentiated adenocarcinoma cervix 4.5mm
- 12/2005 – radical vaginal trachelectomy
- August 2007 - Pregnant
- Progesterone pessaries 200mg BD
- Cervical lengths:
  - 19/40 = 12mm
  - 29/40 = 9mm
  - 33/40 – pPROM & delivery



Healthy baby girl 33+3/402110g  
– classical caesarean section

## Case 2

- 29y nulliparous
- Stage 1b AdenoCa on loop biopsy 03/2004
- April 2004 – radical trachelectomy
- May 2007 – pregnant
- 13/40 – progesterone pessaries
- Cervical lengths:
  - 13/40 = 15.2mm
  - 16/40 = 7.6mm
  - 18/40 = 5-6mm
  - 26/40 = 10mm + funnelling
  - 28/40 = 8.5mm



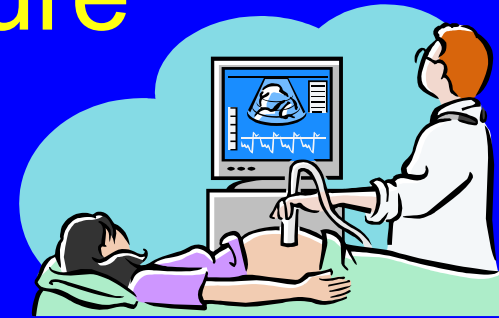
Healthy baby boy 2380g at 34/40  
– classical caesarean section

# Obstetric Issues : Fertility Problems

- Lack of cervical mucous
- Isthmic Stenosis – SD gentle dilatation for dysmenorrhoea & conceived shortly after
- Increasing age in the patients (age range 30-45)



# Obstetric Issues: Premature Labour & PROM



- UK literature review (2008)
  - rate of preterm delivery (24-37 weeks) was 28%
  - Significant prematurity (<32 weeks) 12%
  - 4-fold increase from normal population
  - Risks associated with prematurity – i.e. cord prolapse, breech presentation
- PPRM due to
  - Ascending infection – shortened cervix & lack of protective mucous
  - Cervical Incompetence
    - » funnelling
    - » strong cerclage
  - Prophylactic antibiotics at 16 and 24 weeks?

# Conclusions

- Trachelectomy is an evolving technique
- 3% recurrence rates
- Pregnancy rates of 50-70%
- Prematurity ~20-25%
- Sentinel node biopsy techniques
- Standardised **obstetric protocol** needed

# Cervical cancer in pregnancy

Diagnosis of cancer in pregnancy

NHSCSP No 20

Changes of cervix in pregnancy

- Eversion of endocervical canal

- Changes in endocervical villi

Management of cancer in pregnancy

Histological confirmation

Staging and treatment planning

# Cervical cancer in pregnancy

## Considerations

- Mother and baby
- Time for explanation and decisions may be short
- The implications of these decisions may be long-lasting

## Cancer diagnosed in pregnancy

- Symptoms of bleeding
- Expert assessment by colposcopy/biopsy
- Staging as per non-pregnant patient

Management options depending on stage and gestation

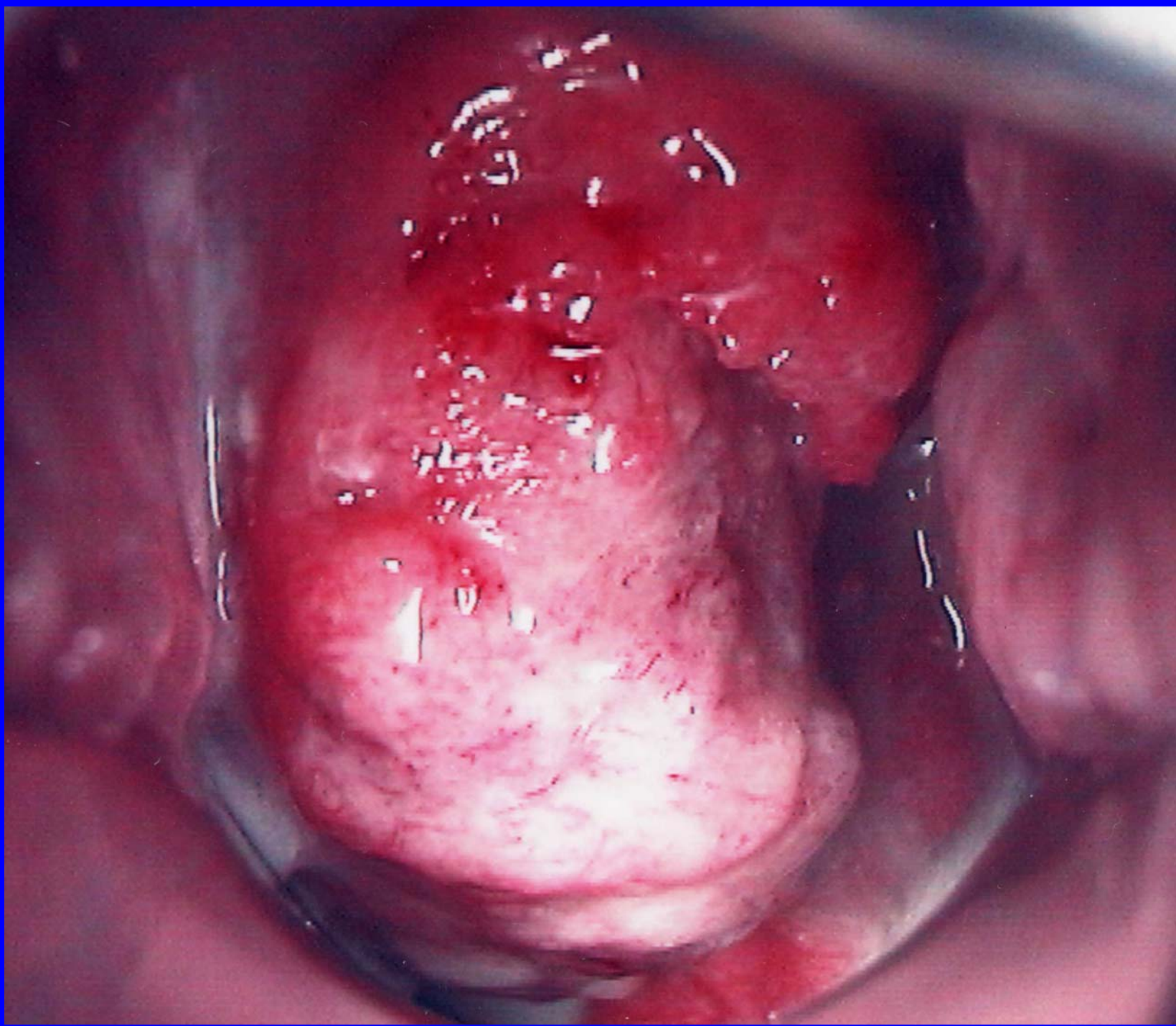
# Staging of cervical cancer in pregnancy

FIGO staging for cervical cancer

Clinical staging but can include hysteroscopy/IVU/CXR

In the UK, MRI and CT are used in treatment planning

ICRP (deriving risks from animal experiments, and survivors of nuclear explosions/accidents) have concluded that there is no risk to the fetus from the doses of radiation used in diagnostic radiology



# Treatment options in pregnancy

1. To allow continuation of pregnancy

Conisation

Delay treatment until postpartum

Delay treatment until viability and combine caesarean section with radical hysterectomy

Neoadjuvant chemotherapy

# Treatment options in pregnancy

2. Treatment results in termination of pregnancy

Radical hysterectomy with fetus in situ/post TOP

Chemoradiotherapy

# Local excision

## Technique

Loop or knife

Risk of haemorrhage 5-15%

## Timing

14-20 weeks

Risk of spontaneous miscarriage (up to 25%)  
and premature labour and delivery

## Follow up

4 weekly for FIGO Stage 1a1

For FIGO 1a2, ?role of lymphadenectomy  
postpartum/laparoscopically during pregnancy

# Radical hysterectomy

## Investigations

MRI/CT scan

? Laparoscopic

lymphadenectomy/?PET/?sentinel node

## Timing of procedure

Under 20/40, can be performed with fetus in situ

After 20/40, ?delay until fetal maturity or  
evacuate uterus

## Combination with LSCS

Timing in consultation with obstetric/neonatal  
teams

# Radiotherapy in pregnancy

Radiotherapy treatment for cervical cancer is incompatible with fetal life

? Begin treatment, ? Delay it

In 2<sup>nd</sup> trimester IQ drops by 21 points/ 1Gy

In 1<sup>st</sup> trimester – miscarriage

Later in pregnancy fetal death within 2-3/52

Evacuation of the uterus may not be spontaneous

# Chemotherapy in pregnancy

Small number of women treated with neoadjuvant chemotherapy in pregnancy (Dr Cardonick has published a series of cases treated with cisplatin)

No major fetal/maternal morbidity reported, but optimal management for women initially treated with chemotherapy during pregnancy remains uncertain

# Recent case

Direct referral to colposcopy  
“Severe dyskaryosis”

P4, 3 eldest in care North of England

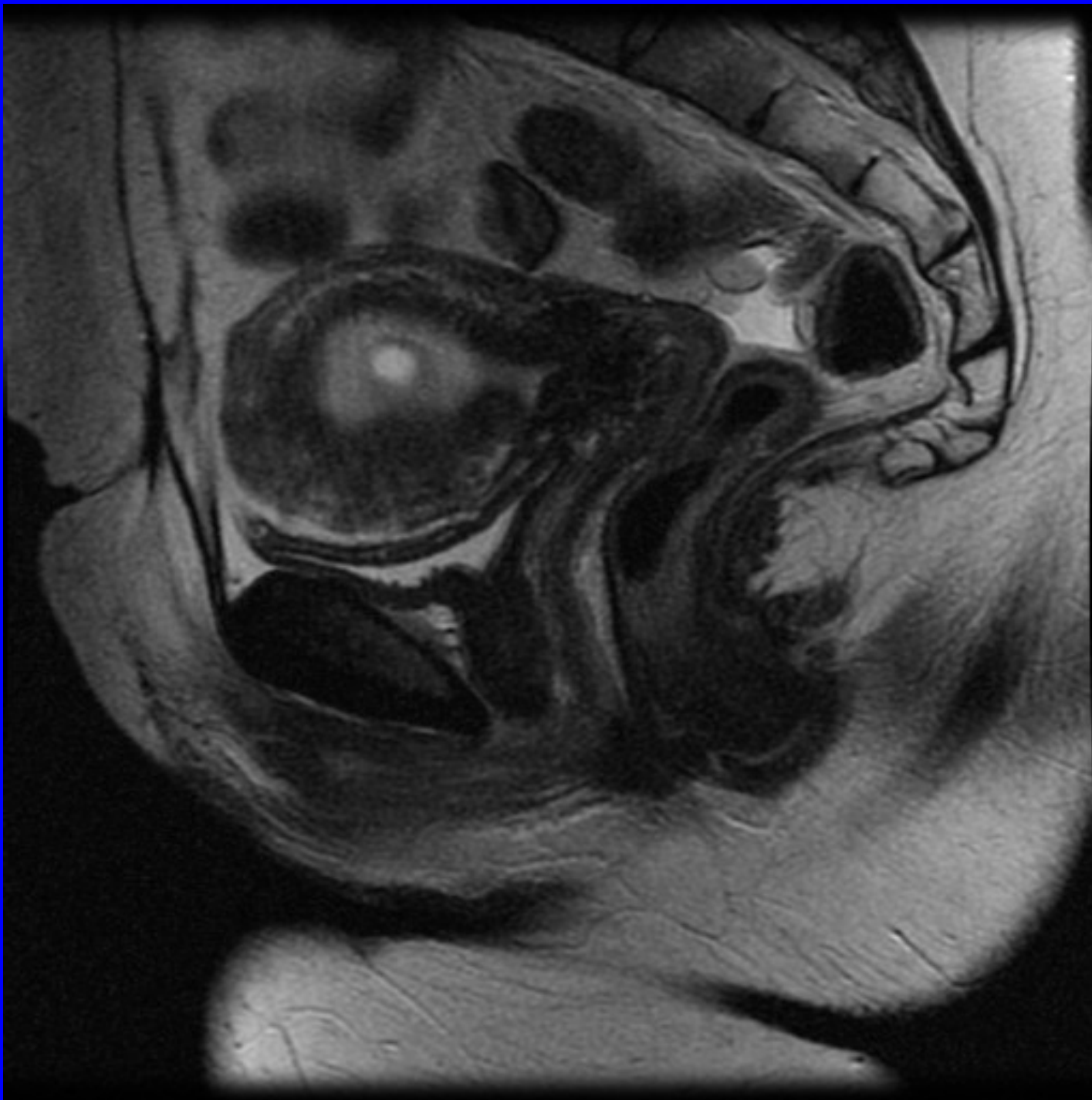
3 year old living with EF and a new partner

Intravenous drug abuser

Colposcopic impression – stage 1b1  
carcinoma at least

Biopsy – moderately differentiated  
squamous cell carcinoma

MRI.....



Complex social and medical problems

Dealing with these requires teamwork and time in order to plan the appropriate treatment for each patient

# Summary

Colposcopy should be performed when indicated in pregnancy by an experienced colposcopist

Decision – treatment/delay to allow continuation of pregnancy vs treatment resulting in termination of pregnancy

Increasing evidence showing no difference between pregnant and non-pregnant groups of patients with cervical cancer

In early stage cervical cancer, delay of therapy may be safe.

Early reports suggest the use of neoadjuvant chemotherapy in selected cases is associated with low risk of fetal/maternal morbidity.