DELTA Centre
Derby Endoscopic & Laparoscopic Training & Academic Centre

Derby Teaching Hospitals NHS
NHS Foundation Trust

Borderline Ovarian Tumours

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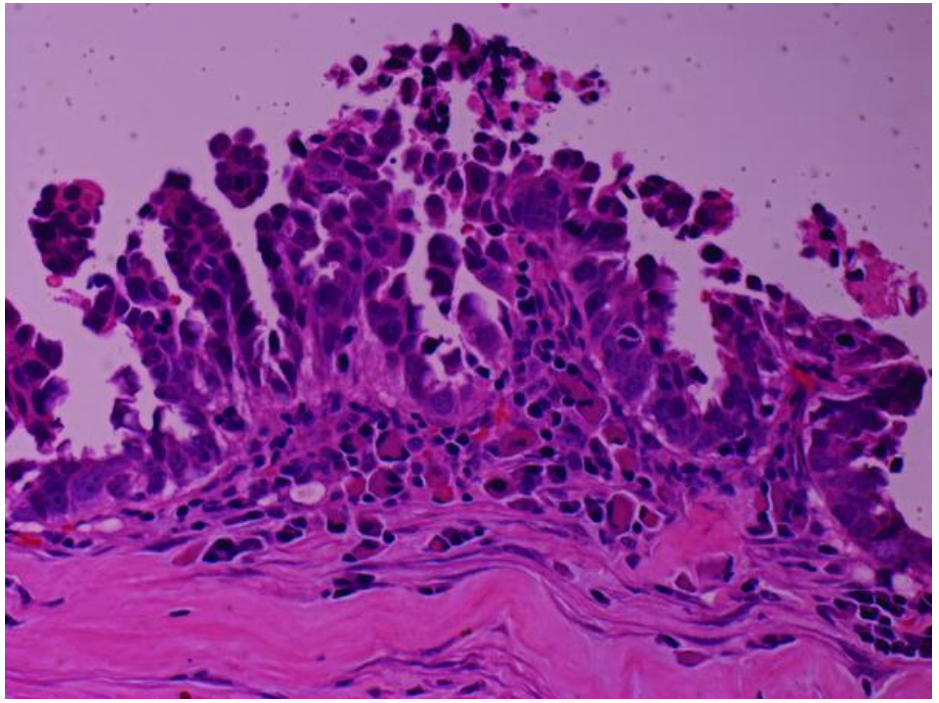
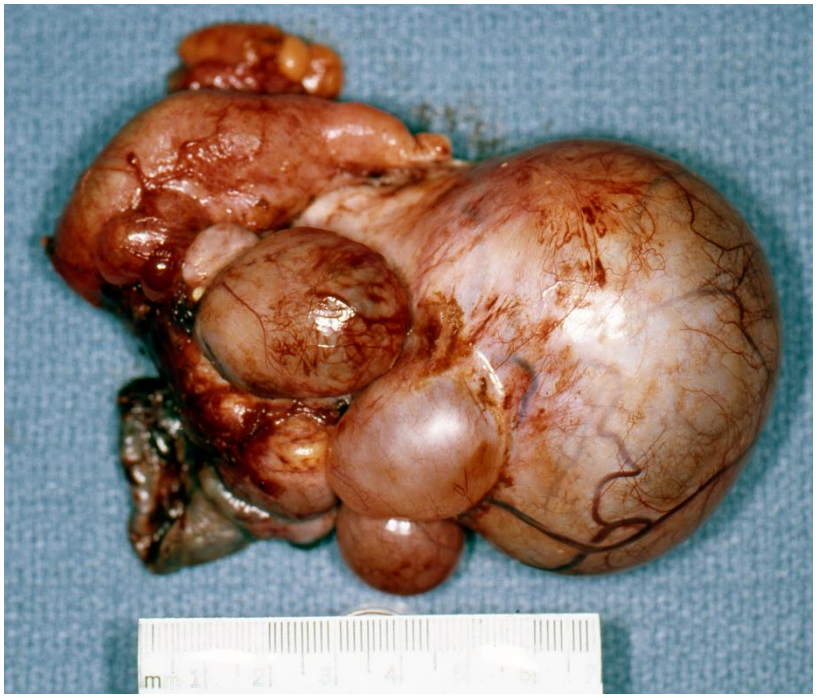




Objectives

- Overview of the pathology of borderline ovarian tumours
- Understand the principles of management
- Review role of fertility sparing surgery and effects on fertility following treatment of BOT
- Recommendations for adjuvant therapy, completion surgery and follow up after BOT.

Background

- First described by Taylor (1971)and constitute 10–15% of all epithelial ovarian neoplasms.
- Higher proliferative activity when compared with benign neoplasms, but which do not show stromal invasion
- Typically seen in a younger age group than their invasive counterparts.
- Diagnosed at an earlier stage, resulting in an excellent prognosis.

Survival Rates

- Survival rates are better than those for women with frankly malignant ovarian tumours.
- The 5-year survival rates for stage I borderline ovarian tumours vary from 95–97%.
- Stage III disease have a good prognosis, with 5 year survival rates of 50–86%.
- The 10-year survival rates range from 70–80%, owing to late recurrence.

Risk Factors

Nulliparous Women

OR 0.44 (CI 0.26 – 0.75) Serous tumour

OR 0.63 (CI 0.34 – 1.19) Mucinous tumour

Protective

Lactation

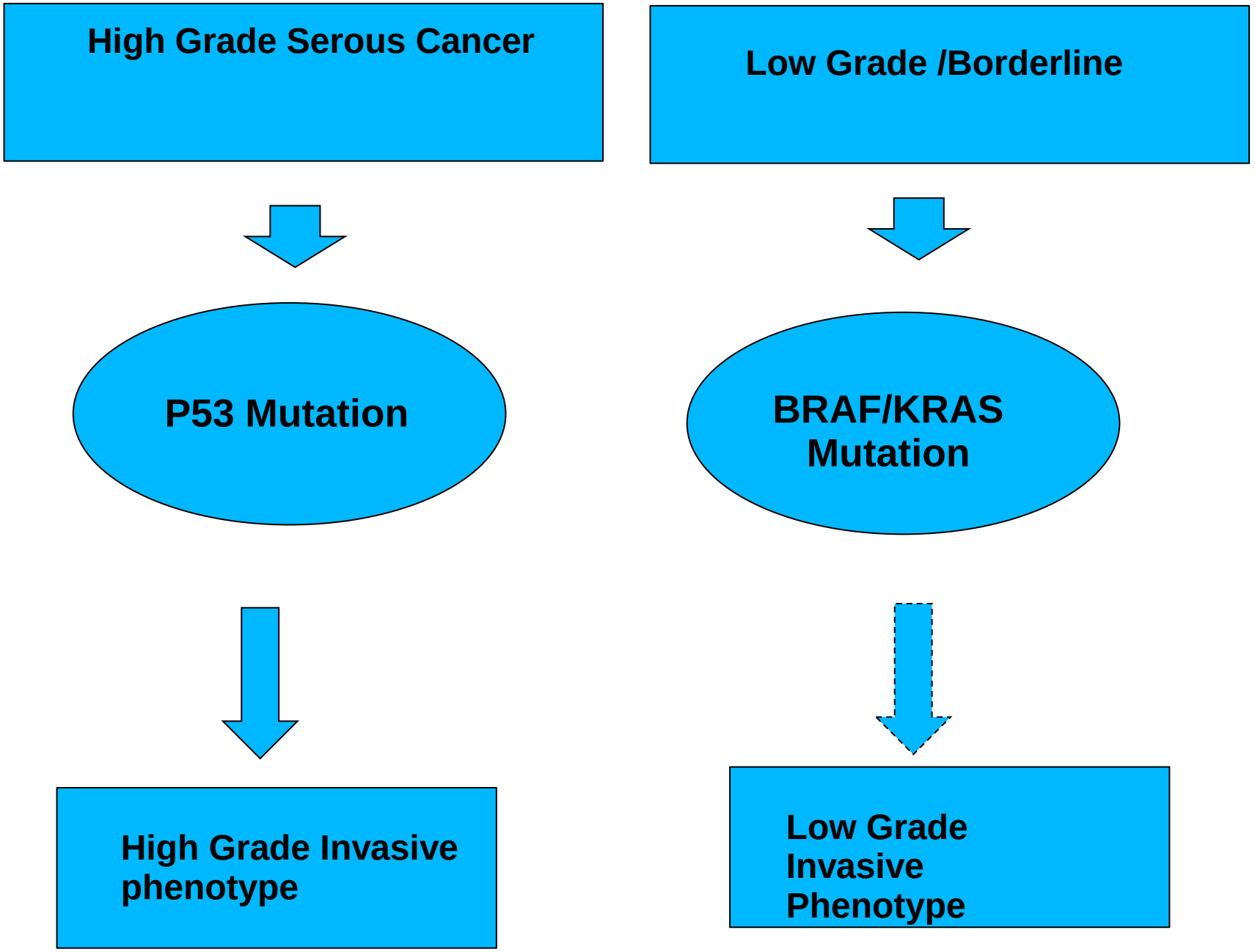
Unique to Borderline

Younger Women

COCP not protective (OR 1.4 CI 0.86 – 2.24)

BRCA gene not connected to Borderline tumours

Ritman et al



Surget et al (2013)

Classification & Staging

Serous **50%**

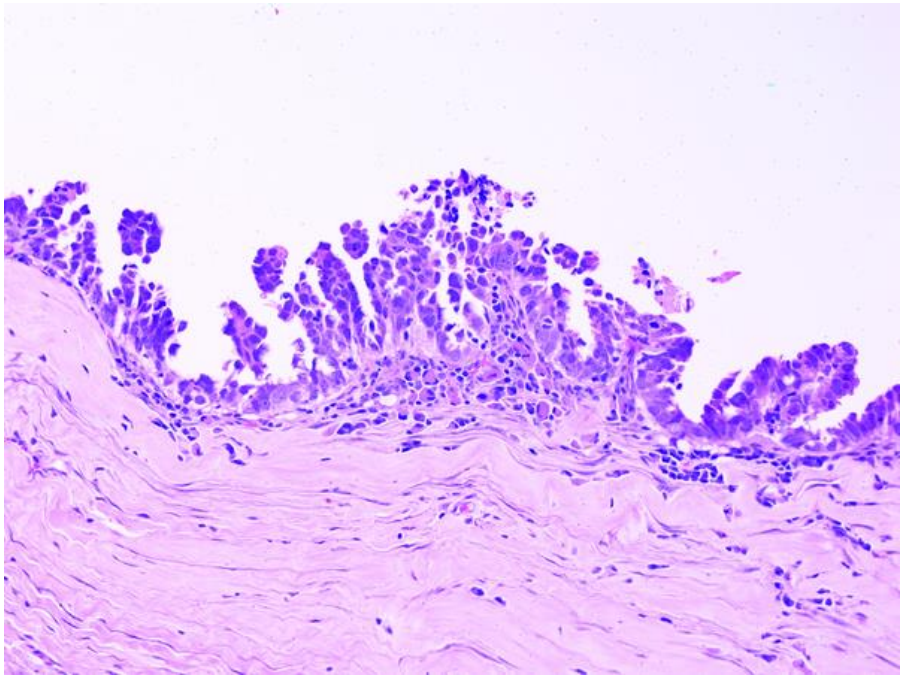
Mucinous **46%**

Endometrioid, Clear cell, Brenner and Mixed **4%**

Stage	
I	Tumour limited to the ovary
Ia	Tumour limited to an ovary, absence of malignant cells in ascites, intact capsule without tumour extension on the ovarian surface
Ib	Tumour limited to both ovaries, absence of malignant cells in ascites, intact capsule without tumour extension on the ovarian surface
Ic[a]	Presence of tumour cells in ascites or peritoneal lavage, presence of tumour on the ovarian surface of one or both ovaries, broken capsule
II	Condition of one or both ovaries with pelvic extension
IIa	Extension and/or in utero metastasis and/or fallopian tubes
IIb	Extension to other pelvic tissues
IIc[a]	IIa or IIb with the presence of tumour cells in ascites or peritoneal lavage, presence of tumour on the ovarian surface of one or both ovaries, broken capsule
III	The tumour compromises one or both ovaries with histologically confirmed peritoneal implants outside of the pelvis and/or positive pelvic lymph nodes. Superficial hepatic metastasis corresponds with stage III. The tumour is limited to the true pelvis but with histologically confirmed malignant extension in the small intestine or the omentum
IIIa	Tumour limited to the pelvis with negative nodes, positive peritoneal implants, or extension to the small intestine or the mesentery
IIIb	Condition of one or both ovaries with histologically confirmed implants, positive peritoneal metastasis, no more than 2 cm in diameter, and the nodes are negative
IIIc	Peritoneal metastasis beyond the pelvis > 2 cm in diameter and/or positive regional lymph nodes
IV	Condition of one or both ovaries with distant metastases. Positive pleural effusion. Metastasis of the hepatic parenchyma

Histological Features

- Nuclear Stratification
- Hyperchromasia
- Prominent Nucleoli
- Increased Mitotic figures



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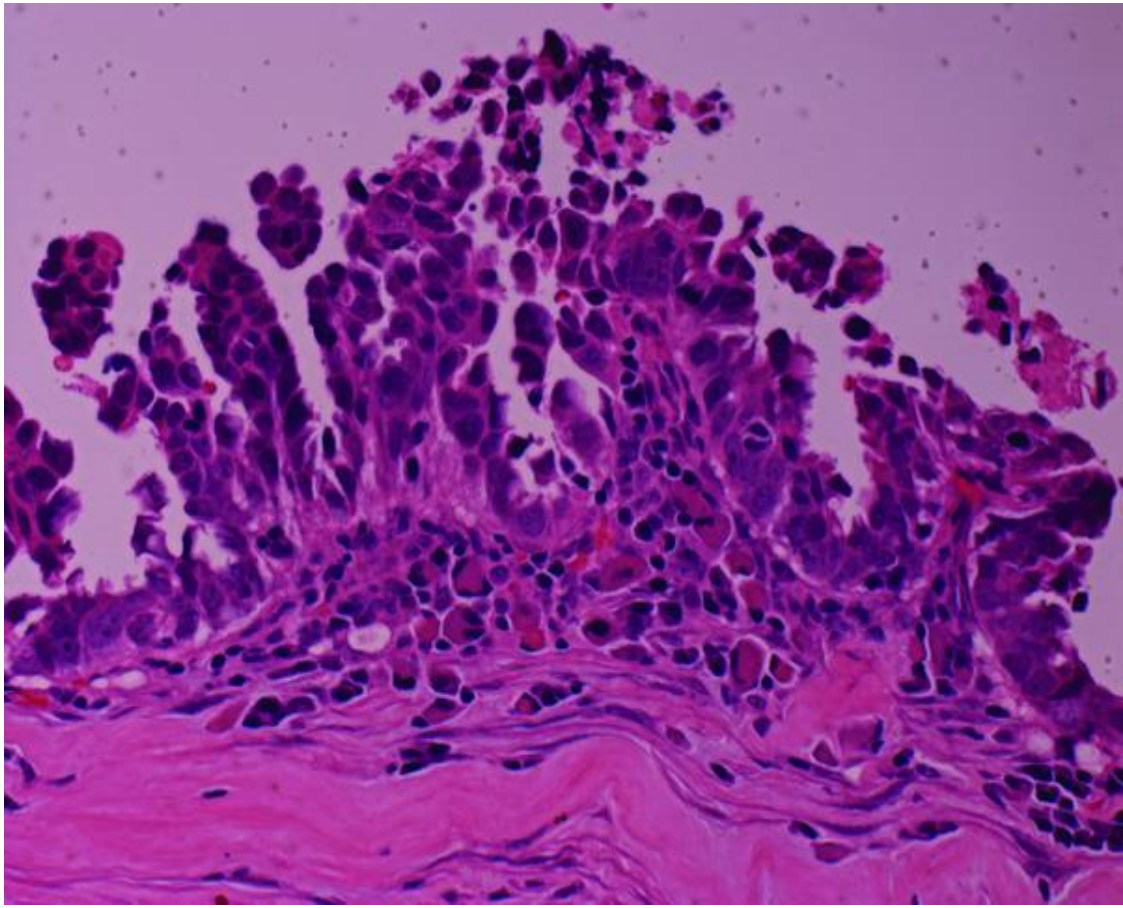
http://onlinelibrary.wiley.com/doi/10.1111/j.1744-4667.2012.00102.x/full#tog102-fig-0003

Serous Borderline Ovarian Tumour

- 70% Unilateral
  - Microinvasive
  - Micropapillary
- Associated with peritoneal implants
  - Invasive implants
  - Non Invasive implants



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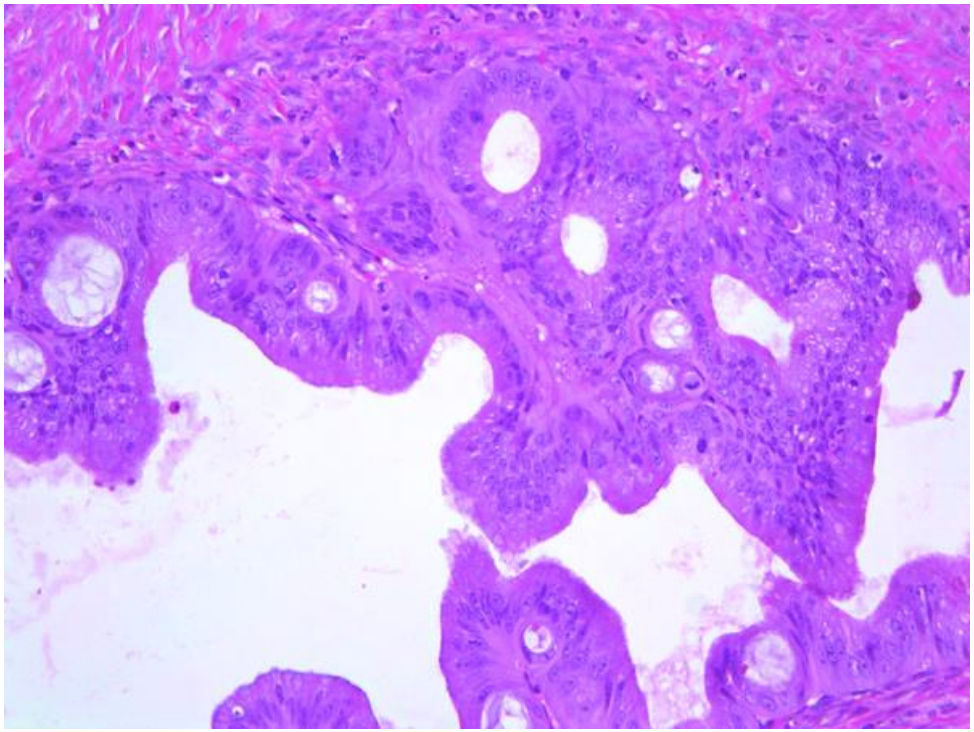
Mucinous Ovarian tumour



- **85% Intestinal type**
  - **Bilateral ? GI secondary**
- **15% Endocervical/mullurian**
- **10% associated with peritoneal pseudomyxoma.**
- **Rarely associated with peritoneal implants**

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Diagnosis

- Often asymptomatic/diagnosed incidentally
- pelvic pain, bloating, dyspareunia, menstrual irregularities and pressure symptoms such as frequency of micturition and constipation.
- CA125 - May be raised(75% in serous, 30% in mucinous) Jones et al (2006)
- CA19-9 - Mucinous tumours raised Ayhan et al
- RMI is frequently low in young age group
- TVUSS

Management

- Individualised
- Fertility Sparing vs Definitive Staging Surgery
- Age of Woman
- Stage of Disease
- Desire for fertility
- Nature of peritoneal deposits

Definitive Surgical Management

- Exploration of the entire abdominal cavity with peritoneal washings
- Total abdominal hysterectomy
- Bilateral salpingo-oophorectomy and infracolic omentectomy
- Appendectomy in the case of mucinous tumours
- pelvic and aortic lymphadenectomy does not improve the disease-free time or overall survival rate for women with BOT

Overall Relapse rates **2.5 - 5.7%**

Fertility Sparing Surgery

"complete staging but with preservation of the uterus and at least a part of one ovary to preserve fertility."

- Unilateral Salpingo-oophorectomy or Ovarian cystectomy
- Exploration of the entire abdominal cavity with peritoneal washings and biopsies
- Omental Biopsy/omentectomy

Relapse Rates

Cystectomy	**12-58%**
Salpingo-oophorectomy	**0-20%**

Management of Borderline Ovarian Tumour should be discussed at MDT

Further management according to the

- Histology, grade, stage,
- DNA ploidy status
- Presence of invasive implants
- Fertility preferences
- Completeness of primary surgery.

Fertility and contraception

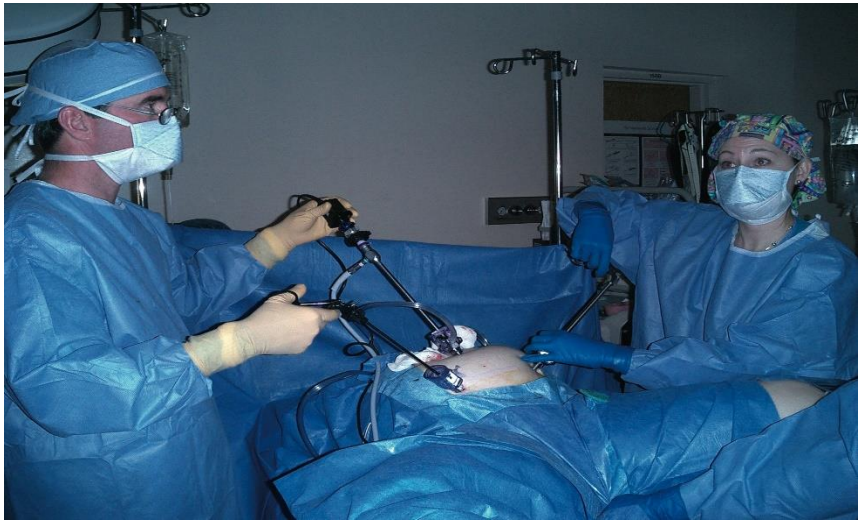
- No reported adverse effects of borderline ovarian tumour on pregnancy or vice versa
- Pregnancy rates 32- 65%
- Small studies demonstrated a recurrence risk of 13-29% with IVF/Clomiphene:
  - -limit number of treatment cycles
  - -limit to those with stage 1 disease

- No known contra-indications to use of contraception following BOT

The role completion surgery

- The need for removal of the remaining ovary and uterus once the family is complete is debatable.
- Recurrence is usually easily resectable, with borderline histology.
- Psychological stress - some women will choose to have definitive after family complete
- Little difference in survival of those having completion surgery.
- Lower threshold for completion surgery in: DNA Aneuploidy, Micropapillary/microinvasive tumour, Presence of Invasive implants

- **Role of Laparoscopy**
- Remains Controversial
- Risk of spillage weighed against morbidity of Midline laparotomy
- Should be discussed at MDT
- Through counselling of patient regarding risks and benefits



Chemotherapy

- The use of adjuvant therapy, whether it is chemotherapy or radiotherapy, independently of the stage or tumour histology

(Faluyi et al, 2010)

- Adjuvant treatment in patients with stage I of the disease, significantly increases intestinal, neurological, and haematological toxicity, without therapeutic benefits
- Very little evidence to suggest benefit in advanced stage disease

Follow Up

After Fertility Sparing Surgery

- 3/12 for 2 years
- 6/12 for 2 years
- Annually Thereafter for 10 years

After definitive surgery

6/12 for 2 years

USS at alternative visits

No place for tumour markers

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References

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