



UNIFE



Maastricht University

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# Female and male infertility

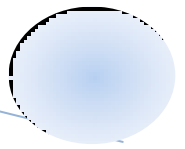
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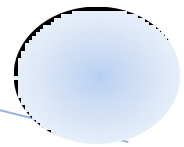
*Ferrara – Maastricht 2014*

**Director: Prof. R. Marci**

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## Female and male infertility





# COURSE PROGRAMME

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## **Week 1. Tuesday 07-01-2014 – Friday 10-01-2014**

### **Tuesday 07-01-14**

10.00 -12.30 Registration of the external students at:  
University, Office International Affairs  
Dott. C. Santoro; Ferrara, Via Savonarola 9

15.00 – 1600 Introduction to the course and distribution of exam tasks  
Arcispedale S. Anna (ASA), Cona, **Aula 5 T 35.33 Cona**  
Prof. R. Marci

16.00 – 17.00 Tutorial : Brainstorm Case 1

### **Wednesday 08-01-14 **Aula 5 T 35.33 Cona****

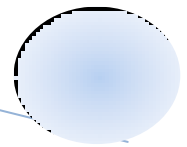
14.30 – 16.00 Lecture: Epidemiology of infertility / Factors affecting  
infertility

### **Thursday 09-01-14 **Aula 5 T 35.33 Cona****

14.30 – 16.00 Lecture: Menstrual cycle / Ovarian Reserve  
16.00 – 17.30 **Sex and Internet (?)**

### **Friday 10-01-14 **Aula 5 T 35.33 Cona****

14.30 – 16.00 Lecture: Male Infertility / Spermogram  
16.00 – 17.30 Tutorial: Report Case 1  
Brainstorm Case 2



**Week 2. Monday 13-01-2014 - Friday 17-01-2014**

**Monday 13-01-14 Aula 5 T 35.33 Cona**

14.30 – 16.00 Lecture: Tubal/Uterine factor

16.00 – 17.30 Tutorial: Report Case 2  
Brainstorm Case 3

**Tuesday 14-01-14 Aula 5 T 35.33 Cona**

14.30 – 16.00 Lecture: Endocrine Disorders

**Wednesday 15-01-14 Aula 5 T 35.33 Cona**

14.30 – 16.00 Lecture: Ovulation Induction / OHSS

**Thursday 16-01-14 Aula 1 T 34.04 Cona**

14.30 – 16.00 Lecture: IUI/ Egg donation/ Surrogacy

16.00 – 17.30 Tutorial: Report Case 3  
Brainstorm Case 4

**Friday 17-01-14**

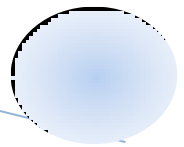
9.00 Lecture: In Vitro Techniques  
**BOLOGNA?**

**Saturday 18-01-14**

9.00 **BOLOGNA?**

**Practical:**

Mon- Thu 9.30-11 Spermogram  
(Mon 3/ Tue 2/ Wed 3/ Thu 2)



**Week 3. Monday 20-01-2014 - Friday 24-01-2014**

**Monday 20-01-14** Aula 5 T 35.33 Cona

14.30 – 16.30           Lecture: Poliabortivity  
Lecture: Fertility preservation options in cancer patients

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16.30 – 18.00           Tutorial:    Report Case 4  
                                  Brainstorm Case 5

**Tuesday 21-01-14** Aula 7 T 35.02 Cona

14.30 – 16.30           Lecture: Endometriosis

**Wednesday 22-01-14** Aula 1 T 34.04 Cona

14.30 – 16.00           Tutorial:    Report Case 5  
                                  Brainstorm Case 6

16.00 – 17.30           Discussion:    Psychological Burdens

**Thursday 23-01-14**

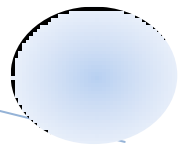
Free for study

**Friday 24-01-14**

Free for study

**Practical:**

8.00 – 9.30           Ovulation Monitoring  
(Mon 3/ Tue 2/ Wed 3/ Thu 2)



**Week 4. Monday 27-01-2014 - Friday 31-12-2014**

**Monday 27-01-14 Aula 5 T 35.33 Cona**

14.30 – 16.00 Lecture: Art and Neonatal Outcome

16.00 – 17.00 Lecture: POF

17.00 – 18.00 Tutorial: Report Case 6

**Tuesday 28-01-14**

Free for study

**Wednesday 29-01-14 Aula 5 T 35.33 Cona**

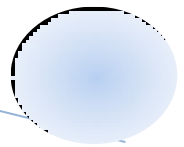
14.30 – 17.30 Presentation of tasks

**Thursday 30-01-14**

Free for study

**Friday 31-01-14 Aula 5 T 35.33 Cona**

09.00 – 12.00 Exam and course evaluation



# EXAM TASKS

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- surgical treatment of agenesis of ductus deferens
- the role of magnetic resonance imaging in the diagnosis of endometriosis
- the role of surgery in the treatment of the tubal factor
- endometriosis and robotic surgery
- hpv & male infertility
- pregnancy after HysterosalpingoContrastSonography
- preimplantation genetic diagnosis
- diabetes and male infertility
- endometriosis & cancer
- ???

# CASE 1

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A 37-year-old female and her 37-year-old husband present with the complain of a possible fertility problem. The couple has been married for 2 years. The patient has a 4-year-old daughter from a previous relationship. The patient used birth control pills until one-and-a-half-years-ago. The couple has been trying to conceive since then and report a high degree of stress related to their lack of success.

The patient reports good health and no problems in conceiving her previous pregnancy or in the vaginal delivery of her daughter. She reports that her periods were regular on the birth control pill, but have been irregular since she discontinued taking them. She works as a cashier, goes jogging 3 times a week and has no history of STDs, abnormal PAPs, smoking, alcohol or other drugs. She has had no surgery.

The patient's partner also reports good health and reports no problems with erection, ejaculation or pain with the intercourse. He has had no prior urogenital infections or exposure to STDs. He has no medical problems or past surgery. He works as a long distance truck driver and is on the road 2-3 weeks each month. He smokes a pack of cigarettes a day since the age of 18.

## Physical exam

The patient is 170 cm tall and weighs 57 kg. Breast exam reveals no tenderness or masses. Pelvic exam reveals normal genitalia, a well-estrogenized vaginal vault mucosa. The uterus is anteflexed and normal in size without palpable masses.

## Semen analysis

Semen analysis revealed 2 cc of semen, 4 million per mL, 30% normal forms and 20% motility.



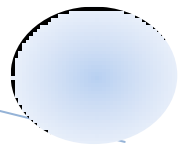
## CASE 2

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An Italian Caucasian 33-year-old woman presented to our clinic with chronic pelvic pain, dysmenorrhea, dyspareunia, and infertility. She entered menarche at the age of 12 years, experiencing dysmenorrhea and heavy menstrual bleeding during menstruation. She was placed at the age of 25 on an oral contraceptive for 5 years, which controlled her symptoms temporarily. At the age of 30 she decided to have a baby, and she stopped the hormonal therapy. Since then there has been a worsening of symptoms, including abdominal pain, dysmenorrhea, menorrhagia, and dyspareunia. Moreover, the patient was unable to get pregnant. Her medical history was silent for major diseases; the same was for her partner.

We evaluated her partner with hormonal and semen analyses, and there were not anomalies in these exams. The patient's first laboratoristic evaluation (FSH, oestradiol in 3<sup>rd</sup> day of menstrual cycle, progesteron in 21<sup>st</sup> day of menstrual cycle, prolactine, thyroid function, infectivologic exams) was negative for any pathology. The bimanual examination revealed a normal uterus, but the exam evoked strong pain. Her pelvic exam revealed two masses, an adnexal right mass and a retrocervical nodule. Then she underwent a transvaginal sonography that revealed an ovarian endometrioma in the right ovary (34x42 mm of mean diameters), endometriosis of the uterosacral ligaments, and a retrocervical nodule of endometriosis (3,4x3 mm of mean diameters). We performed specific laboratory test for endometriosis, that is CA125, that resulted altered (85 UI/ml). The other ovarian markers were silent (CA19.9, CEA, CA15.3). She performed an MRI that confirmed results obtained from transvaginal sonography. She underwent an operative laparoscopy with the asportation of the ovarian endometrioma, of the retrocervical nodule, and of the endometriosis of the uterosacral ligaments; surgeons performed also adhesiolysis. Chromopertubation of fallopian tubes revealed unilateral patency, and a moderate obstruction of the right tube; surgeons did a salpingoplasty, and the chromopertubation revealed at the end bilateral tubal patency. After the surgery, the patient did oral contraceptive for six months, and then she stopped it. Hormonal exams were still normal, and an intrauterine insemination was performed. She obtained a pregnancy and nine months after she delivered vaginally a healthy baby.

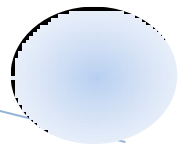


## CASE 3

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A 23-year-old G0 P0 female presents to the office with complaints of irregular cycles since menarche. Upon further questioning, she also has noticed an increase in facial hair and acne for many years. She denies any history of medical problems and has a strong family medical history of diabetes. On examination, she is noted to have a normal blood pressure (BP), pulse, respiratory rate, and temperature. She is obese with a body mass index (BMI) of 34. She is noted to have some hirsutism and acanthosis nigricans (of neck and inner thighs). Her pelvic examination is limited by her obesity but normal. She now desire pregnancy.

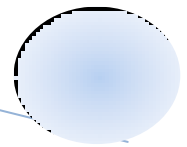


## CASE 4

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Mary-Beth is a 28 year-old women, who presented to our Infertility Unit, with 16 months of primary infertility. Her personal history for previous surgery or other relevant pathologies was negative. Menarche occurred at age of 12, followed by regular menstrual bleeding. At 22 she commenced on birth-control pill that stopped 2 years later. Before starting any treatment hormonal profile of the couple and a sperm test for the partner were planned. They all resulted normal. After 4 failed Intrauterine Insemination (IUI) cycles, the couple underwent 2 In Vitro Fertilization (IVF) cycles preceded by a karyotype analysis that resulted normal. They both ended with few oocytes retrieved (3 and 1 respectively) and none fertilized. Before all procedures the patient was stimulated with high doses of recombinant-FSH, followed by daily dose Ganirelix when at least two follicles had reached 14 mm diameter. Ovulation triggering was performed using a subcutaneous injection of coriogonadotrophin alpha. Five months after the last IVF-cycle the patient came back referring amenorrhea. Laboratory tests revealed FSH level at 65 and 75 mUI/mL , estradiol at 33 and 26 pg/mL and Anti Mullerian Hormon (AMH) at 0.0 ng/mL in two serial determinations. The couple was then listed for oocyte donation. One year later the patient experienced a menstrual bleeding and a month after a pregnancy test resulted positive. Nine months later a healthy baby was delivered.



## CASE 5

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Peter, a 34-year-old married man, was referred to our Infertility Unit with a 3 year of male factor infertility. His height was 156 cm and weight 64 kg. The patient had fully mature normal male genitalia with no symptoms of undervirilization. The penis was normal and the testicles were descended in the scrotum but small in size with volumes 4.8 ml and 5.1 ml (normal range 18–30 ml). No gynecomastia was noted and his facial, axillary and pubic hair were of normal density and distribution. Semen analyses showed azoospermia.

Serum concentrations of LH and FSH were elevated at 15.8 mIU/ml (normal range 2.0–14.0 mIU/ml) and 25.8 mIU/ml (normal range 1.5–12.0 mIU/ml), respectively. Testosterone hormones level was normal at 580 ng/dl (normal adult male range, 437–707 ng/dl) as was the serum prolactin concentration at 141 IU/l (normal range 55–680 IU/l).

The karyotype of the patient showed 46,XX cell populations without any numerical or structural chromosomal aberrations; molecular analysis of Y-chromosome-specific markers, such as SRY, revealed their absence in patient's DNA. Real-time PCR assay showed SOX9 duplication.

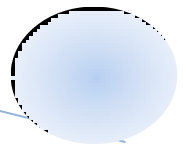
Robert is a 28-year-old man who came to the Infertility Unit with the complain of infertility. His previous medical and reproductive history was negative. The physical examination performed with the patient in the upright position showed an abnormal dilation of the venous plexus in the left side of the scrotum, evident only by palpation, like a “bag of worms”; the enlargement of the veins increased during a Valsalva manoeuvre, but it disappeared in the recumbent position. The testicular volume was 19 ml (normal range 18–30 ml) and the abdominal palpation was negative.

Serum concentrations of LH, FSH and testosterone were normal, while the semen analyses revealed mild asthenospermia and teratospermia.

The Doppler examination revealed a venous retrograde flow through the scrotal veins, more intense while performing the Valsalva manoeuvre.

One week later the patient underwent a percutaneous embolization treatment.

Both of the female partners had normal fertility but only one couple, three months later, conceived naturally a child. Which one?



# CASE 6



