



## OVARIAN HYPERSTIMULATION SYNDROME IN ITS MAJOR FORM

### About three cases and review of the literature

Adil ZEMMOURI (1), Abdelghafour EL KOUNDI (1), Hicham EL FAZAZI (2), Ahmed MEKLA A (2), Mohamed DEHAYNI (2), Haimeur CHARKI (1)

(1) Intensive care unit and anesthesia center of the Mohammed V Military Hospital MOROCCO

(2) Department of gynecology of the Mohammed V Military Hospital MOROCCO

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### ABSTRACT

*Ovarian hyperstimulation syndrome (OHSS) in its severe form is the most dreaded complication of ovulation induction techniques. This is a rare, unpredictable and totally iatrogenic complication of IVF. Although a symbol of scientific progress in the field of infertility, IVF could cause considerable damage and sometimes be fatal.*

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### INTRODUCTION

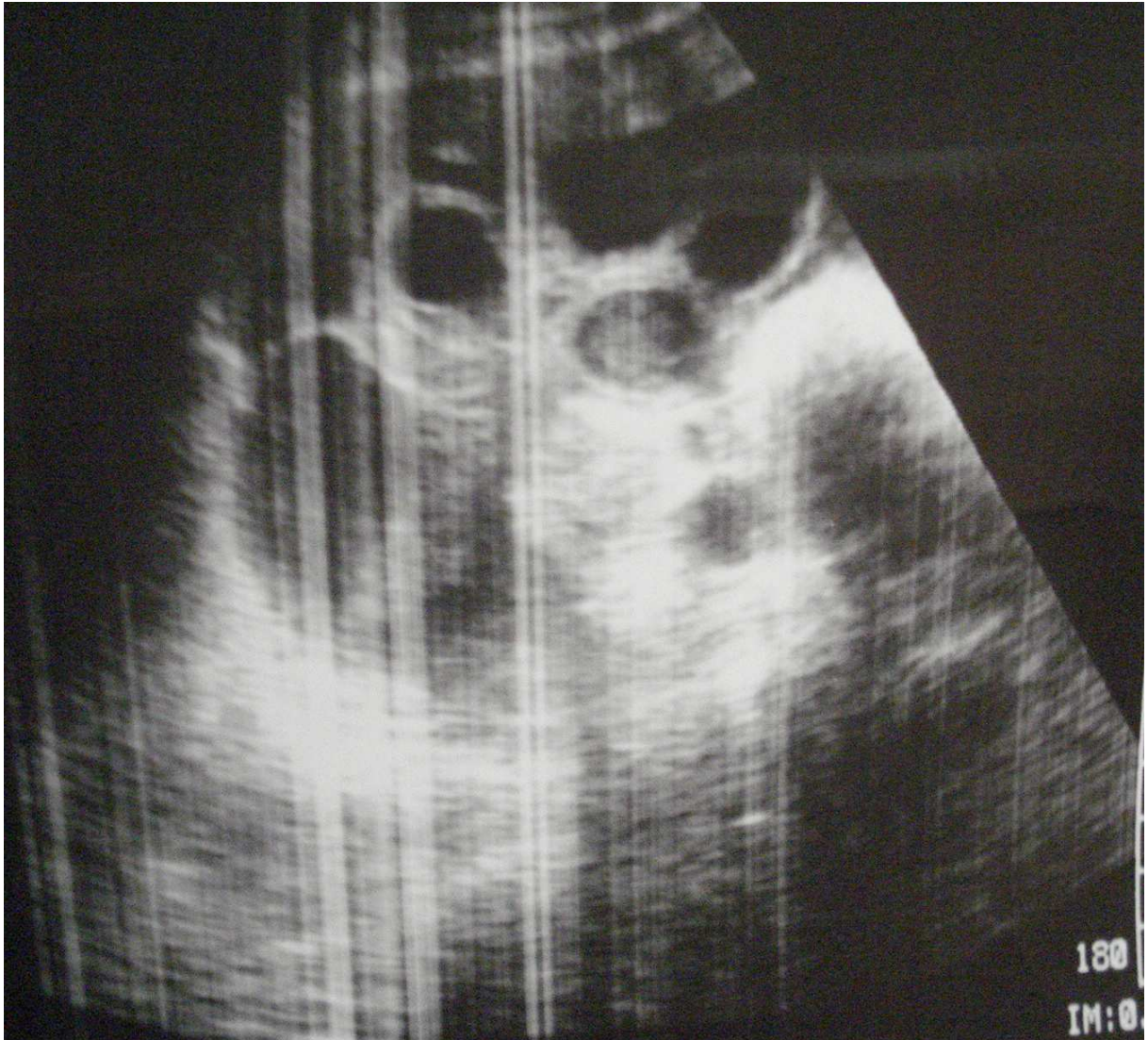
#### Interest

Through this work we try to highlight through 3 clinical observations some aspects that could take the OHSS in its critical form. This syndrome often unknown in its mild and moderate forms is in its severe form a threat that can be life-threatening, it is a complication that we may see more and more in our practice because of the explosion of practice IVF (currently 19 centers)

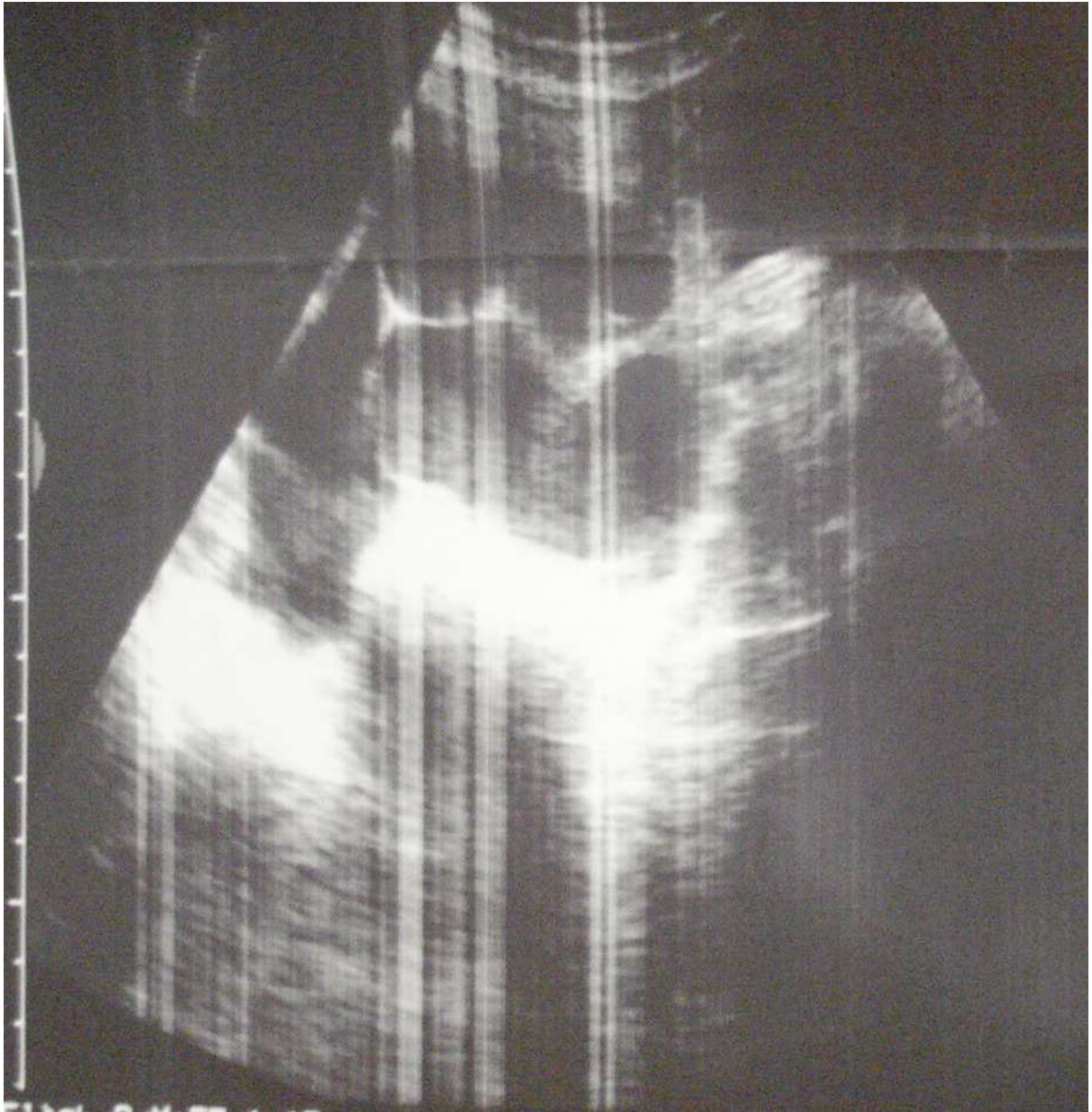
### MATERIAL AND METHODS

#### Case report number 1

Mrs AA 31 years old having primary infertility for 7 years. The patient received IVF after 4 weeks of preparation. One week after the embryo transfer, the patient presented to the emergency department with signs of great abundance. Gynecological examination and pelvic ultrasound find a progressive pregnancy. The evolution in intensive care was marked by the installation of oligoanuria associated with hydroelectrolytic disorders. Management consisted of vascular filling, dopamine, diuretics, salt-free diet, heparin therapy, antibiotic prophylaxis and colysis. After 8 days in intensive care ; favorable evolution.



**Figure1 : Left multi follicular rovary**



**Figure 2 : Right multifollicularovary**

Case report number2

Mrs SO 30 years old with primary in fertility for 3 years. After preparation and embryo transfer, the patient is admitted to resuscitation for bilateral pleuritis with ascites of moderate abundance. Following the same symptomatic treatment as in the 1st case associated with pleural punctures; the evolution was favorable after 11 days in intensive care unit.

Case report number3

Mrs FN 39 years old with primary in fertility for 13 years, and a history of failure of IVF, presents in the emergency room (after 10 days of transfer) with left hemiplegia with facial involvement and ascites of great abundance putting the umbilicus in tension. CT at normal H1; CT after H24 right AVCI extended. Evolution despite the early setting on LMWH marked by the partial recovery of the

hemi-body deficit before paretic but facial paralysis has persisted. After 4 days in intensive care transfer to another center on request.

### **Discussion**

Ovarian hyper stimulation syndrome (OHSS) is a potentially serious complication of ovarian stimulation occurring in the luteal phase or early pregnancy. Its incidence varies according to the studies (1 to 10% of in vitro fertilization cycles [1]) and the classifications used. The severe, potentially life-threatening form (1 death in 400 000 cycles per thrombosis [2], hypovolemia and serous effusions).

Ovarian hyper stimulation results from an excessive follicular response during stimulation, followed by injection of chorionic gonadotropins (HCG) [3,4,5]. It occurs most often in the week following the onset of ovulation by HCG injection. The ovaries are more or less bulky. The follicles are transformed into yellow bodies after ovulation, in a massive and brutal way. The estradiol level is very high. The capillary permeability is increased, in particular in the serosa (peritoneum, pleura, pericardium). This results in a massive passage of liquid and protein from the vascular space to the serosa. This results in the creation of a third fluid sector, a decrease in diuresis, functional renal failure and hypo-volemia.

Occasionally, ovarian hyper stimulation occurs later in pregnancy. It results then from the endogenous secretion of HCG by the trophoblastic cells of the gestational sac. The main classifications used are [1] :

#### **Golan (1989 )**

- Minimal grade 1 :abdominal distension
- Minime grade 2: grade1+nausea, vomiting and / or diarrhea, Ovaries between 5-12 cm
- Moderate grade3 :grade2 + ultrasound ascites
- Serious grade 4 : grade3 + Clinical Ascites ± Clinical Hydrothorax
- Serious grade5 :grade4 +increased blood viscosity, Haemo concentration, ionic disorders, coagulation abnormalities, Decreased renal function, ovaries> 12 cm.

#### **NCCWCH (2004)**

- Minimum : abdominal meteorism, average pain, ovaries<8 cm, hematocrit<45%, GB <15,000
- Moderate :nausea ± vomiting ± Diarrhea, ovaries 8-12 cm, ascites ETG, hematocrit<45% and GB <15000
- Several : clinical ascites ± hydrothorax ± edema, ovaries> 12 cm, hematocrit> 45%, GB> 15,000 ± abnormalitiesliver test.

OHSS is a phenomenon related to an increase in capillary permeability with the constitution of a sector & thrombophilia. The 3 cases described are serious forms corresponding to the severe stage grade 5 (Golan1989) & critical stage (NCCWCH2004). The treatment is purely symptomatic

The prevention of HSO isbased first of all on the screening of patients at risk of having an excessive response to stimulation, before starting treatment [6,7]. The choice of stimulation protocol should be best adapted to the hormonal profile of the patient. Gonadotropin doses should be selected based on the patient'sage, ovarian reserve, and possible polycystic ovary syndrome. For example, a young

patient with normal ovarian reserve and polycystic ovary syndrome is at higher risk of HSO than an older patient with decreased ovarian reserve. The proper course of stimulation of ovulation is monitored by monitoring ovulation. Gonadotropin doses should be adjusted during treatment and should be lowered if the response appears excessive. In the single non-IVF pacing protocol, treatment should be discontinued when there are more than 3-4 mature follicles and the level of 17 beta estradiol exceeds 1000-1500 pg / mL.

In the IVF stimulation protocol, treatment should be discontinued or suspended for a few days (coasting) when there are many mature follicles and the level of 17 beta estradiol exceeds 4000 pg / mL [8]. Embryocryo preservation with transfer during a subsequent cycle is an alternative solution. It does not prevent the appearance of hyperstimulation, but reduces the importance and duration. This avoids closing the hyper stimulated cycle

Various other measures have been proposed but not yet proven (intravenous administration of human albumin [9], administration of glucocorticoids [10], early unilateral follicular aspiration, bilateral follicular re-aspiration after oocyte retrieval [11], ovarian electro-coagulation and laser cortical spraying before ovarian stimulation, etc.).

The treatment of mild forms of OHSS do not require any treatment and can be monitored on an ambulatory basis.

Moderate forms require careful monitoring, clinical, biological and ultrasound. Severe forms require hospitalization in a suitable and specialized environment. Clinical monitoring of moderate and severe forms should focus on finding ascites (ultrasound), pleural effusion (clinical examination and, if in doubt, chest x-ray), pericardial effusion (cardiac ultrasound), thrombo embolic phenomena (clinical examination and, in the slightest doubt, Doppler ultrasound).

In severe forms, the abdominal perimeter and diuresis should be evaluated daily. Similarly, a complete blood test should be performed daily (hematological examination, ionogram, plasma proteins, plasma and urinary osmolarity, coagulation assessment, evaluation of renal and hepatic function).

The treatment of hyper stimulation syndrome is essentially symptomatic. First of all, it is essential to restore circulating volumes and to correct hydro-electrolytic disorders. Colloidal substances are preferentially administered (human albumin, Dextran, etc.).

We systematically prevent thromboembolic phenomena by administering low molecular weight heparin. The use of diuretics is controversial. In case of their use, a restoration of the circulating volume must be carried out beforehand.

In case of severe abdominal distention, a paracentesis can be performed. In case of severe pleural effusion, accompanied by severe dyspnoea, a puncture is indicated [10,11].

In the most severe forms, with renal failure, respiratory distress, pericardial effusion, massive thrombosis and multi-systemic failure, a stay in Intensive Care is essential. As the phenomenon is self-sustained by endogenous hCG, in excessively severe forms where the maternal vital prognosis is at stake, therapeutic interruption of pregnancy is sometimes essential [11].

## CONCLUSION

Major ovarian hyperstimulation is a rare but potentially serious complication. The prevention of OHSS is essential and depends on the precise choice of the gonadotropin starting dose, based on the field and the antecedents, by the monitoring of the stimulation, which can lead to a suspension of

this one (coasting)

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