International Federation of Gynecology and Obstetrics
SURGICAL PROCEDURES IN ART
PITFALLS

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FIGO REI Committee
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San Jose, December 2016
OBJECTIVES

• Quality services in ART theatre
• Staff training standards
• Tips and tricks
• Good clinical practice
• Staff training
• Oocyte retrieval
• Embryo transfer
• Testicular biopsy
OOCYTE RETRIEVAL

Ultrasound View

Ovary
PRE - EGG RETRIEVAL

• Establish risk
  – Low risk – performed in out of hospital facilities
  – Higher risk – in hospital facilities
  – High risk – treatment offered?

• Anaesthesia clinic
  – Anybody with a risk during surgery
    • Transplant
    • Chronic respiratory, renal, cardiovascular disease

• hCG administration
  – Verify before theatre
PRE - EGG RETRIEVAL

- Consent
- Checklist
- Witnessing
INFORMED CONSENT

– Procedure

– Risks and Complications

– Alternative treatments or operative measures

– Anaesthesia

– Declaration by the surgeon that above have been discussed

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RISKS

- Bowel, bladder perforation
- Blood vessel injury
- Ovarian torsion
- Infection-peritonitis
- Laparotomy

- Measure and quote (1:1000)
Complications related to ovarian stimulation and oocyte retrieval in 4052 oocyte donor cycles.

Bodri D, Guillén JJ, Polo A, Trullenque M, Esteve C, Coll O.

Abstract
A retrospective study was conducted in a private infertility centre to evaluate the rate of complications in a large oocyte donation programme. A total of 4052 oocyte retrievals were performed between January 2001 and October 2007. Altogether, 1238 cycles (30.6%) were stimulated with the use of gonadotrophin-releasing hormone (GnRH) agonists and in 2814 cycles (69.4%) the GnRH antagonist protocol was used. The GnRH antagonist treated cycles were triggered with human chorionic gonadotrophin (HCG) or a GnRH agonist in 1295 and 1519 cycles, respectively. Complications related to oocyte retrieval occurred in 17 patients (0.42%) (intra-abdominal bleeding: n = 14, severe pain: n = 2, ovarian torsion: n = 1). Fourteen of these were hospitalized (0.35%) and six donors (0.15%) required surgical intervention. Pelvic infections, injury to pelvic structures or anaesthesiological complications were not observed in this series. Moderate/severe ovarian hyperstimulation syndrome (OHSS) occurred in 22 donors; 11 required hospital admission and 11 were managed on an outpatient basis. All cases were related to HCG triggering (0.87%). Serious complications related to oocyte retrieval occurred at a low rate in healthy young donors. The risk of OHSS can be substantially reduced by specific stimulation protocols, which include GnRH agonist triggering. Prospective oocyte donors should be adequately counselled about the risks related to egg donation.

PMID: 18881909
• Active witnessing
• Both male and female
• Procedure
• Lab involved
DURING EGG RETRIEVAL

• Anaesthesia
  – Anaesthetist
  – Doctor delivered

• Ergonomics
  – US, assistant, anaesthesia machine
  – Tube heaters; emergency trolley

• Streamlining
  – Doing no other duties while operating

• Lab equipment in theatre
  – IVF chamber
  – Microscope

• Back up
  Aspiration pump, US probe, tube heaters, light bulb

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– Procedure
  • Outcome
  • Complications and actions taken
  • Antibiotics

– Recommendations (vaginal pack)

– Database

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TECHNICAL CHALLENGES

– The “difficult to enter” ovary
  • Needle
  • Angle
  • Force

– The “difficult to view” ovary
  • Find best angle
  • Reinsert needle

– Follicle or blood vessel?
  • Use Doppler, rotate probe

– The “tired shoulder”
  • Use elbow on knee technique

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QUALITY

• Do
  – Timely egg retrieval
  – Witnessing
  – Staff know their role
  – Efficient
    • Quick
    • Effective
    • Safe (no risks)
  – Communicate with couple at the end
  – Use vaginal wound pressure at end of procedure

• Do not
  – Take risks that are unwarranted
    • Mobilising the ovaries through the abdomen
    • Retrouterine ovary that does not mobilise
    • Poor view; needle not seen
  – Wonder with the needle
    • Still, aspirate, move

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RECOVERY AND DISCHARGE

• **Recovery**
  - Full time monitoring
    - Airway
    - Respiratory rate
    - SaO2
    - BP, HR, Temp
    - Pain, sedation, nausea scores
    - PV loss
    - Passed urine

• **Discharge**
  - Consciousness
  - Pain control
  - Oral fluids
  - i.v. cannula
  - Vaginal pack
  - PV loss
  - Instructions
  - Accompanied
  - Discharged by
    - Time and signature

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AFTER EGG RETRIEVAL

• Emergency cover
  – Provide numbers where the patients can contact the unit
  – Exact instructions of what to do

• Antibiotics
  – Use antibiotics if endometriosis diagnosed or previous history of PID
  – After testicular biopsy
EMBRYO TRANSFER
PRE ET

• Decision on numbers to transfer
  – Scientists and medical staff to decide the number of embryos in advance of transfer

• Consent
  – Included in the procedure documentation
    • Number of embryos to be transferred
    • Signed by both partners
    • Risk of multiple pregnancy included

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IN THEATRE

• ID
  – Active witnessing by two scientists
  – Recorded in chart and signed by both

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DURING EMBRYO TRANSFER

- Partner
- Bladder
- Ultrasound - reassurance

- Nurse help with US and patient comfort
During embryo transfer

- Catheter
  - dummy transfer
  - no pre-loading
  - US visible

- Embryos in incubator at all times
AFTER EMBRYO TRANSFER

- Rest
- Advice
- Progesterone use
- Follow up hCG levels
- Emergency contact numbers
STAFF TRAINING

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See
Catheter choice
Technique
Ultrasound use

Do
Theory
IUI
Embryo transfer

Audit
All embryo transfers (50%)

Improve
Maintain skills
Teach

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# Training plan

## SPECIFIC TRAINING PLAN
Complete each specified task once under supervision

<table>
<thead>
<tr>
<th>Orientation to HARI Unit</th>
<th>Chart Number</th>
<th>Complete Date</th>
<th>Trainee Signature</th>
<th>Trainer Signature</th>
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</thead>
<tbody>
<tr>
<td>Introduction to the HARI Unit and personnel. Information on working hours, annual leave entitlements, direct line manager and deputy.</td>
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<th>Interview / Review Process</th>
<th>Chart Number</th>
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<th>Trainer Signature</th>
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<tbody>
<tr>
<td>Rapport with couple, Dealing with patients, Knowledge of Medical Treatment, Complications of treatment, Donor Selection, evaluation and testing. Use of visual aids, Handling of Questions, Accurate Record Keeping, Complete record keeping.</td>
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<td>Rapport with couple, Pre-Surgical check-up, Patient Identification and Consent, Operative skills, Post-operative skills, Accurate and Complete record keeping.</td>
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<tr>
<td>Rapport with couple, Patient Identification and Consent, Transfer Technique, Follow-up discussion, Accurate and Complete record keeping, Individual pregnancy rate.</td>
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# Protocols

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Co-pilot

• Dedicated, qualified trainers
  – certified externally or internally
    • Show how to do it - observation
    • “Hands on” supervised training
    • Feedback

• Trainer in Charge (Master)
Surgical procedures OR (70)

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<th>Date</th>
<th>C No</th>
<th>No. Follicles</th>
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Fly on your own

• Distance supervision (in the building)
  – Gaining confidence and rarely asking for support
  – Refining the skills
  – Taking more calculated risk
  – *Does work outside weekdays*
IUI and embryo transfers

- Catheters
- Day of transfer
- Discussion and consent
- Bladder

- Observe
- Do
- Do without supervision
- Train

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## IUI and embryo transfer (70)

<table>
<thead>
<tr>
<th>Rep No</th>
<th>Date</th>
<th>C No</th>
<th>No. of Embryos</th>
<th>Trainee</th>
<th>Mentor</th>
<th>Rep No</th>
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Embryo transfer sign-off

Embryo Transfer Metrics

Number of Difficult Transfers performed: __________________

Total number of Transfers performed: __________________

Positive pregnancy Rate: __________________

Further training necessary  ☐ Yes ☐ No

Additional Comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Training Completed and Final Supervision by Consultant in Charge

Trainee Signature: ___________________________ Date;_________________________

Mentor Signature: ___________________________ Date;_________________________

Consultant in Charge Signature: ___________________________ Date;_________________________
Certification

- Accurate
- Measure of quality
- True reflection of abilities

- Competent
- Safe
- Constant performance

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Continuous improvement

• Analysis of results
  • Complication rates
  • Pregnancy rates

• Suggesting improvements in technique or processes
  • Protocol writing
  • New expertise build-up

San Jose, December 2016
Ulster Med J 2014;83(3):146-148

Case Report

Transvaginal Oocyte Retrieval Complicated by Life-Threatening Obturator Artery Haemorrhage and Managed by a Vessel-Preserving Technique.

Ferdia Bolster¹, Edgar Mocanu², Tony Geoghegan¹, Leo Lawler¹

Accepted 11th June 2014
Fig 1. CT demonstrates a large right sided retroperitoneal haematoma (solid white arrow) and intra-abdominal free fluid consistent with haemorrhage (interrupted white arrow).

Fig 2. CTA demonstrates a vascular “blush” of a 2cm pseudoaneurysm and active extravasation from a branch of the right internal iliac artery (white arrow).
in the literature\textsuperscript{3,4}. Both previously described cases presented much later following initial oocyte retrieval with one patient presenting in the 29\textsuperscript{th} gestational week and the other over 10 years after successful IVF\textsuperscript{3,4} and neither case presented in extremis. Lifesaving laparoscopy or laparotomy may be required in cases of large bleeding\textsuperscript{2}.

\textbf{Fig 3.} Up and over selective cannulation of the right internal iliac artery was performed and demonstrated a 2 cm saccular obturator artery pseudoaneurysm (white arrows).

\textbf{DISCUSSION:}

Transvaginal oocyte retrieval is a frequently performed assisted reproduction technology (ART) procedure. Under direct ultrasound guidance an aspiration needle is passed through the lateral fornix of the vagina into the stimulated ovary with subsequent aspiration of follicles.

\textbf{Fig 5.} Post stenting DSA showed good stent position and cessation of extravasation of contrast with preservation of the native artery (white arrow).
DISCUSSED

• Egg retrieval
  – Practical approach
  – Tips and tricks
  – Good clinical practice

• Embryo transfer
  – Good clinical practice

• Training

San Jose, December 2016
FIGO REI COMMITTEE 2015 - 2018

David Adamson (USA)
Silke Dyer (South Africa)
Dov Feldberg (Israel)
James Kiarie (WHO)
Jaydeep Malhotra (India)
Edgar Mocanu (Ireland, Chair)
Ernest Ng (Hong Kong)
Zev Rosenwaks (USA)
Fernando Zegers (Chile)
THANK YOU