Bibliographic Review Presentation on *Adhesion Prevention in Tubal Surgery*

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Rationale

- Clinical question in view of tubal infertility management IN MY ENVIRONMENT
- Adhesion prevention - global perspective
- Indicate possible solution to improve the condition

Objectives

- Acquire knowledge on pathogenesis of adhesion formation and re-formation to prevent it in clinical practice
- Participate or undertake clinical research trials that involve adhesion prevention activities in tubal surgery

Review Methods

- Electronic data bases: MEDLINE, OVID
- Terms used: Adhesion prevention, tubal surgery, postoperative procedures
- Human and animal models
- English Publications from 1957 - 2000.
- 137 publications (16 reviews,3 Cochrane)

Adhesion Pathogenesis

- SURGICAL INJURY
- Stromal mast Cells disruption
- Release of vasoactive substances (histamines, kinines, leucotrienes)
- Increased blood vessel permeability
- Formation of fibrin exudates

Pathogenesis continued... Fibrin Exudate

- Plasminogen..Plasmin
  - Plasminogen activator
- Fibrinolysis
- Mesothelial regeneration
- No Adhesion

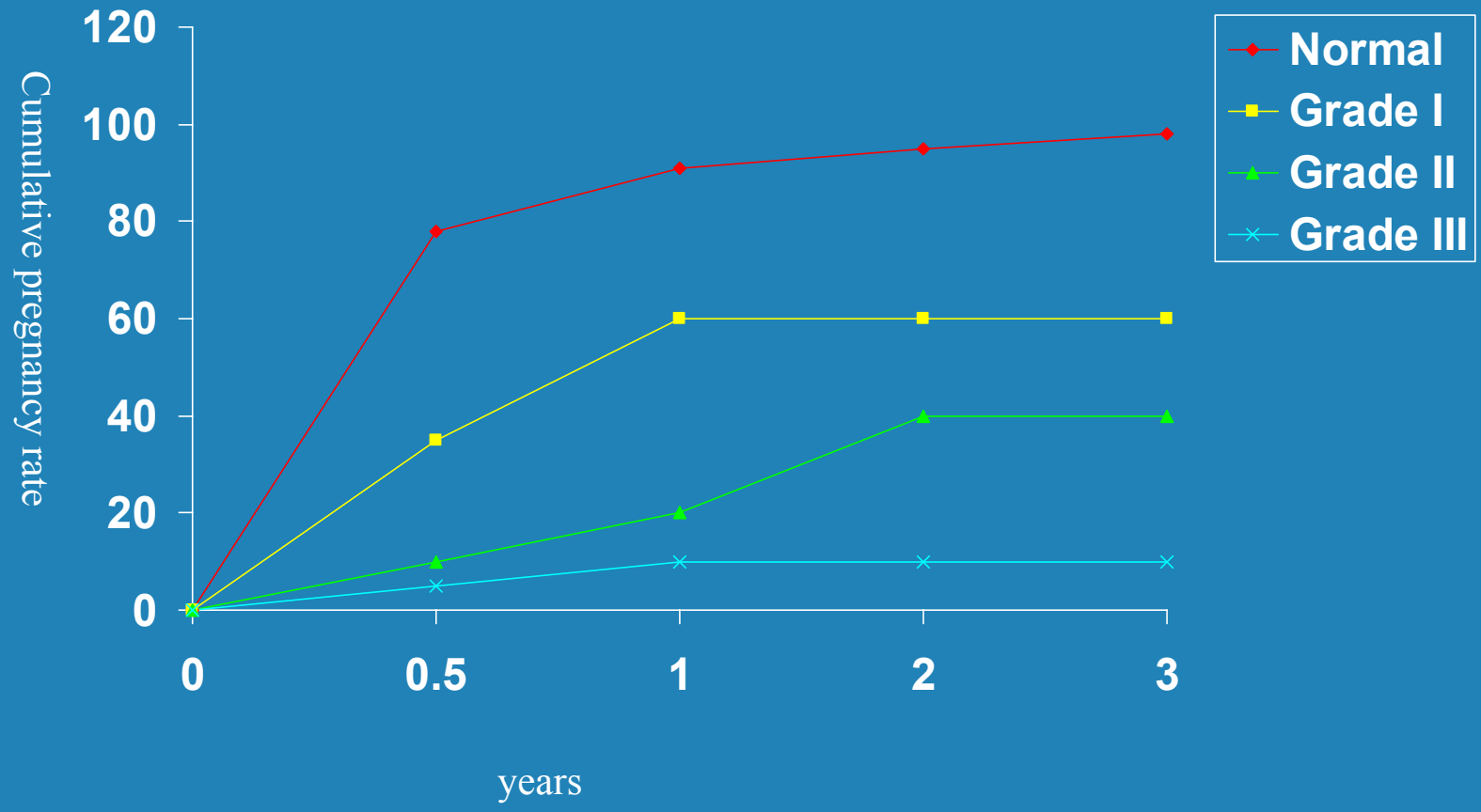
- Plasminogen..Plasmin
  - Decreased activator
- Decreased fibrinolysis
- Fibroblast proliferation
- Adhesions

Staging of tubal disease

Modified from Winston et al. 1991, Br. J. Ob. Gyn.

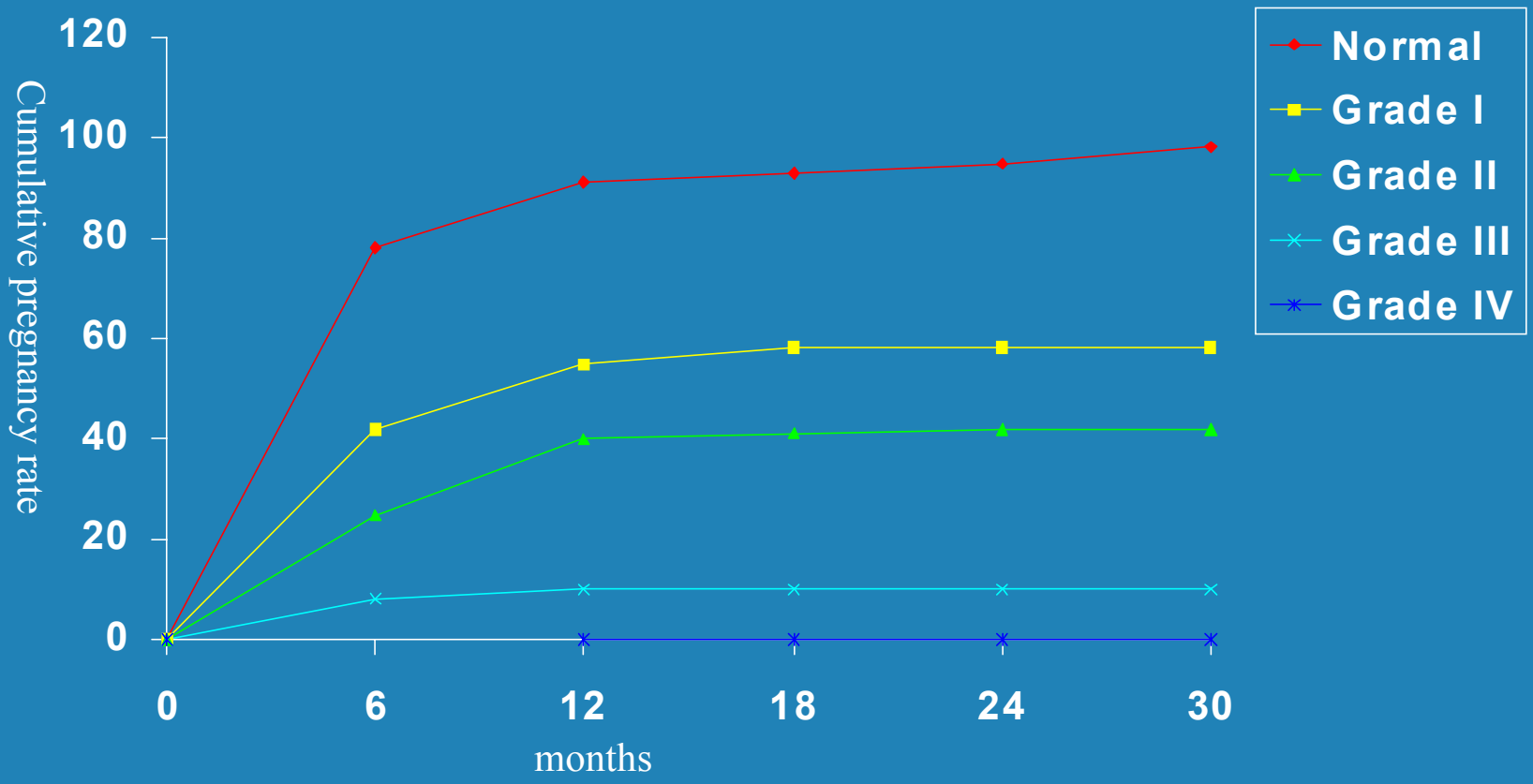
Stage I	• Thin wall with good mucosa • Flimsy adhesions limited to the ampulla and ovary only • Ovary present an mainly free
Stage II	• Thick wall with good mucosa • Thin wall with altered mucosa • Intraluminal adhesions • Fibrous thick adhesions involving tube and/or ovary
Stage III	• Thick wall with altered mucosa • Clean hydrosalpynx with nodularity of patent isthmus • Ovary incarcerated against pelvic side wall or absent
Stage IV	• Tubo ovarian mass or fibrous adherent hydrosalpynx with incarcerated ovary and or isthmic damage

Cumulative pregnancy rate after surgery for infective tubal damage adapted from Wu et al. 1988

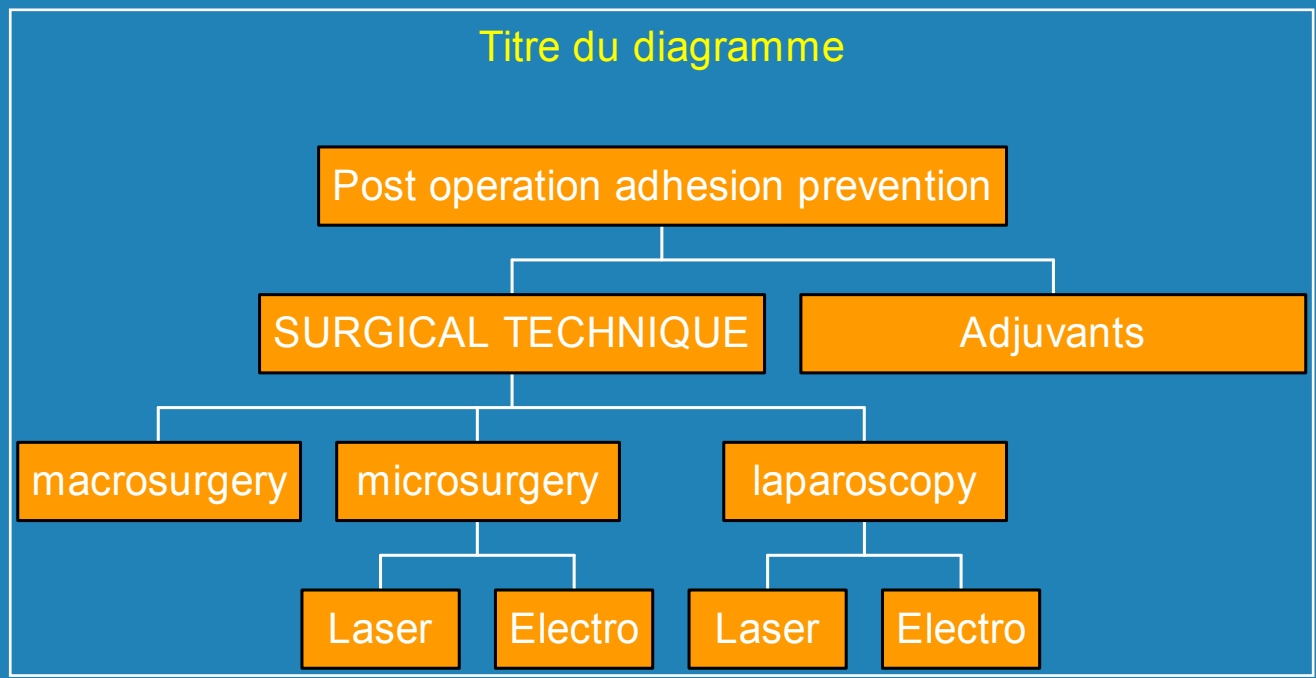


Laparoscopic salpingosotomy: fertility results according to tubal mucosa appearance

Adapted from Dubuisson et al. 1994



Postoperative adhesion prevention strategies



Classification of Adjuvant

- Nature
  - bio-degradable or not
  - liquid or solid
- Application time
  - preoperative
  - intraoperative
    - before tissue injury
    - after tissue injury
  - postoperative
    - hydrotubation
    - 2nd look laparoscopy
- Administration route
  - intraperitoneal
  - oral
  - parenteral
- Mechanism of action
  - mechanical (barrier)
  - anti-inflammatory
  - Fibrin inhibitors
  - fibrinolytics
  - protect tissue damage

Mechanisms of action

- Anti-inflammatory
  - corticosteroids, other steroids, NSAID, Promethazine, calcium channel blockers, pentoxifylline.
- Fibrin inhibitors
  - heparin, sodium citrate, Ringer`s lactate
- Promote fibrinolysis
  - tissue enzymes
- Mechanical barriers
  - solid
    - PTE, (Gare-Tex) TC7,
  - liquid or gelatinous
    - Seprafilm, Sepracoate, fibrin glue, surgicel, polyethylene glycol hydrogel, 32% dextran 70, Ringer lactate etc.
- Prevention of tissue damage
  - hydrophilic polymer solutions

Review Summary - Surgery

- Surgical techniques (microsurgery vs laparoscopy) and modalities

Review Summary - Adjuvant

- No ideal adjuvant
- Among the available in priorities
  - PTFE (Gore-Tex, Preclude)
  - Interceed (TC-7)
  - Seprafilm, Genzyme
  - Polyethylene glycol hydrogel
  - Hyaluronic acid
  - Chondroitin Sulphate
  - Fibrin sealants (glue)

Conclusion

- *Is the clinical question answered?*
- *K*nowledge and practical skills.
- How about conventional and adjuvant?
- Can barriers be specific for tubo-ovarian surface?