



# **Bibliographic Review Presentation on *Adhesion Prevention in Tubal Surgery***

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# ***Rationale***

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

# *Objectives*

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- ∞ **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**

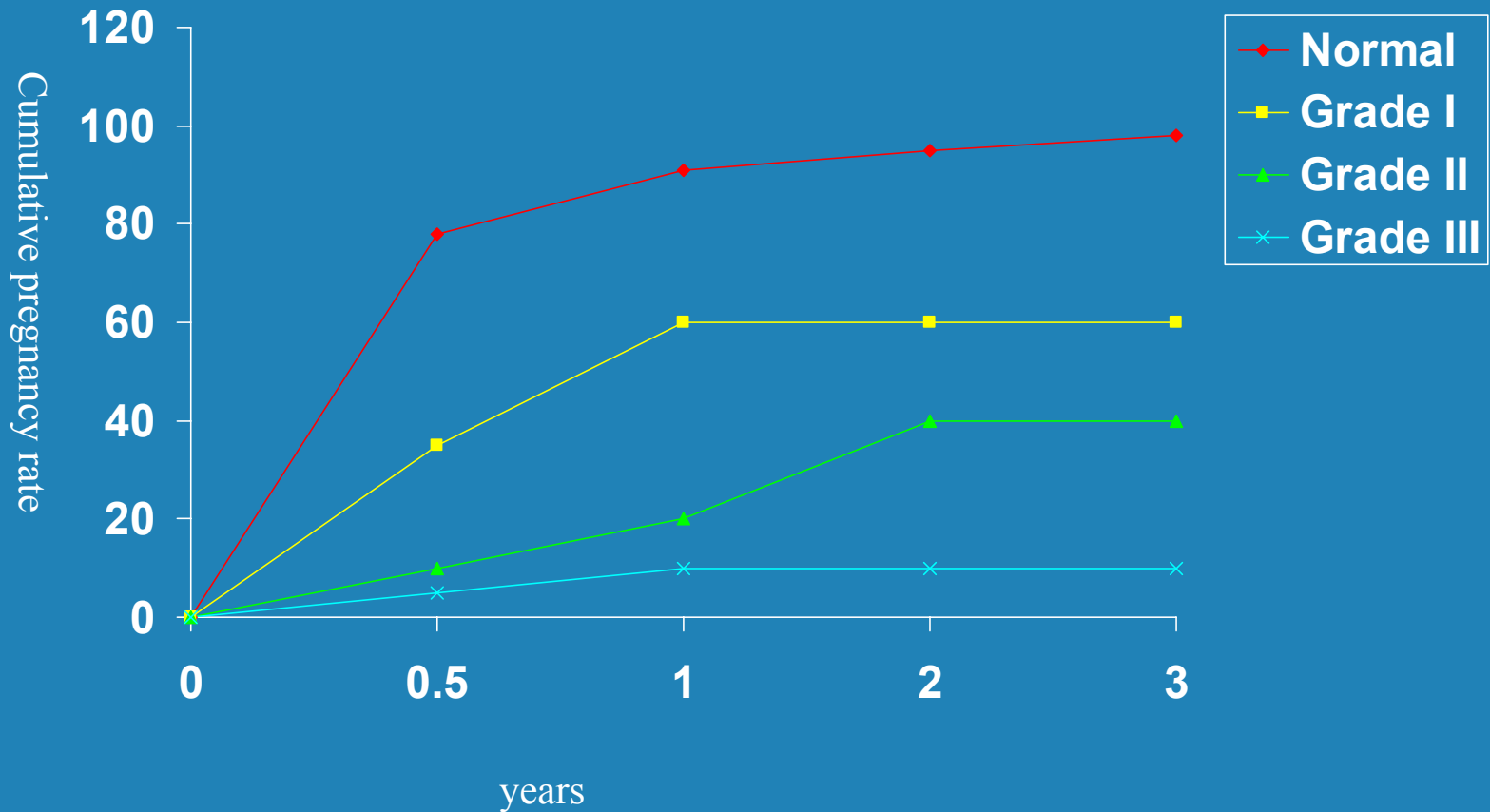
# Staging of tubal disease

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

Stage I	<ul style="list-style-type: none"><li>• Thin wall with good mucosa</li><li>• Flimsy adhesions limited to the ampulla and ovary only</li><li>• Ovary present and mainly free</li></ul>
Stage II	<ul style="list-style-type: none"><li>• Thick wall with good mucosa</li><li>• Thin wall with altered mucosa</li><li>• Intraluminal adhesions</li><li>• Fibrous thick adhesions involving tube and/or ovary</li></ul>
Stage III	<ul style="list-style-type: none"><li>• Thick wall with altered mucosa</li><li>• Clean hydrosalpinx with nodularity of patent isthmus</li><li>• Ovary incarcerated against pelvic side wall or absent</li></ul>
Stage IV	<ul style="list-style-type: none"><li>• Tubo ovarian mass or fibrous adherent hydrosalpinx with incarcerated ovary and or isthmic damage</li></ul>

# Cumulative pregnancy rate after surgery for infective tubal damage

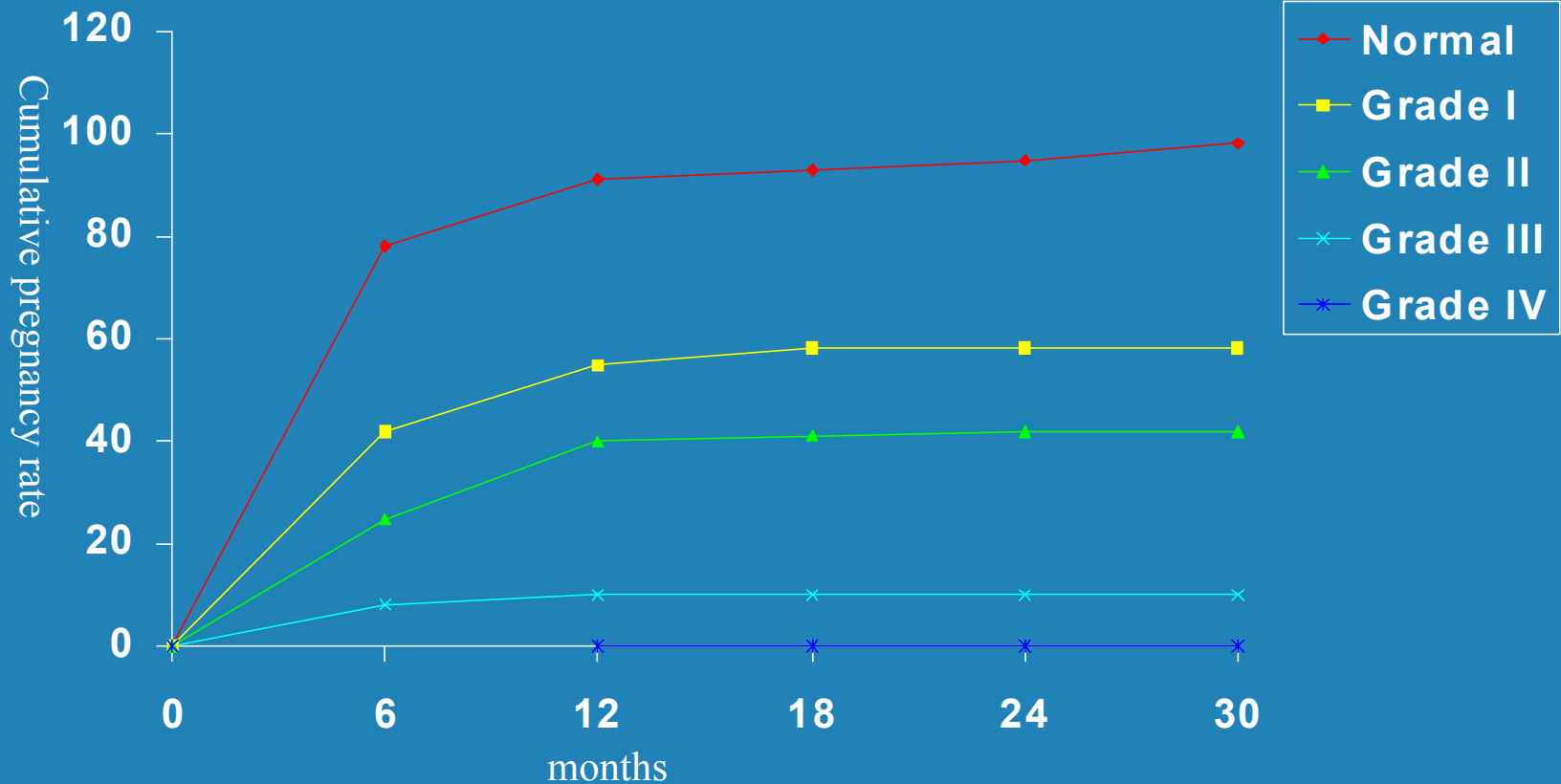
adapted from Wu et al. 1988



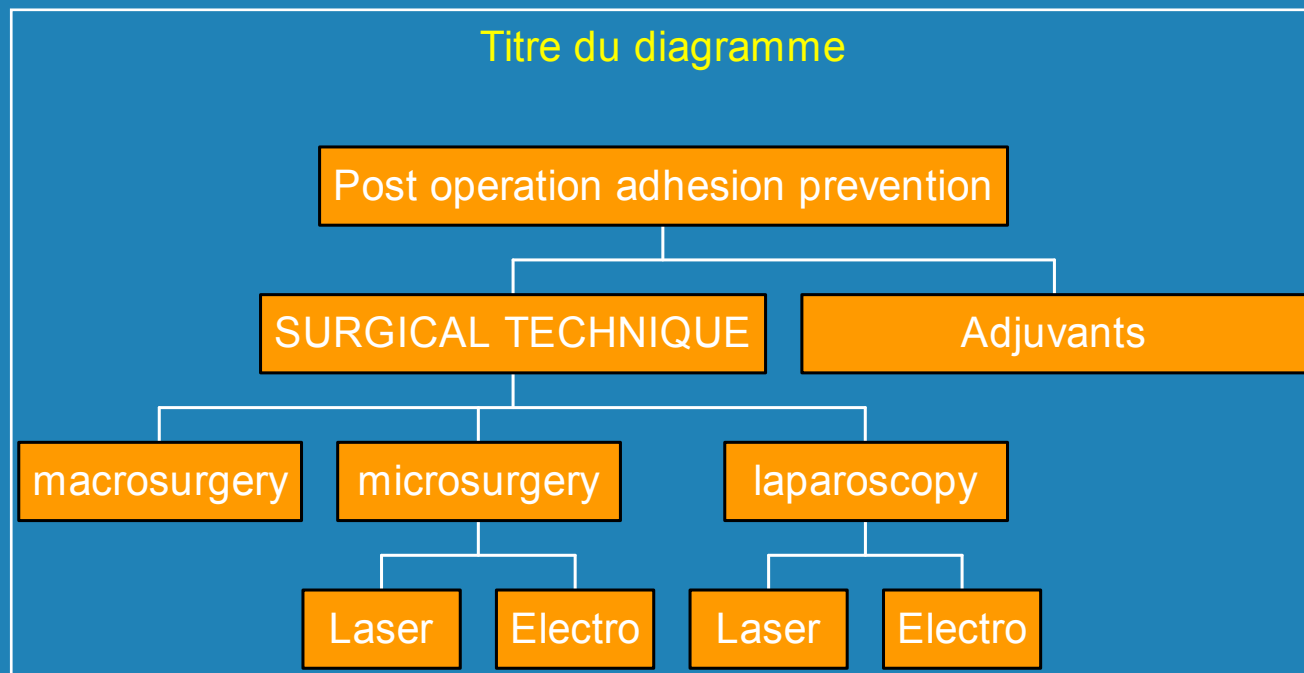


# Laparoscopic salpingosotomies: fertility results according to tubal mucosa appearance

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***

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**Ω 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?*
- ⌚ **Knowledge and practical skills.**
- ⌚ **How about conventional and adjuvant?**
- ⌚ **Can barriers be specific for tubo-ovarian surface?**