Laparoscopic sentinel-node biopsy in cervical cancer P. Mathevet, A. Major

# Blue dye

- <u>Advantages</u>: easy, low cost, no use of radio-active products, good sensibility (?).
- **Disadvantages**: per-operative detection requiring a relatively large surgical dissection, reduced rate of detection (?)

# Isotopic method

 Advantages: performing a pre-operative scintigraphy in order to localize sentinel nodes in other territories than pelvic, per-operative detection easy to perform with help of endoscopic probes, reproducibility, efficacy (?).

Disadvantages: handling of isotopic products, cost.

## Sentinel node

Isotopic method (Technetium 99)
 » Colloidal particles
 Possibility of location of abnormal lymphatic drainage (scintigraphy)
 Problems: size of the particles and injected volume

# Technique

- Cervical injection (4 quadrants)
   Time between injection and detection of the sentinel node: function of the tachnique
  - technique
    - » blue dye: 10 to 20 minutes
    - » isotopic method: variations of time depending on size of the particles (2 to 18 hours)









# Lymphatic drainage of the uterus

#### • 3 drainage directions

- Main channel = along the uterine pedicles
- Accessory channel along the infundibulo-pelvic pedicles
- Accessory channel going from the posterior part of the uterus

# Lymphatic drainage of the uterus

- Main drainage (uterine pedicles) goes to the external iliac nodes
- Channel along the infundibulopelvic pedicles goes to the paraaortic supra-mesenteric nodes
- Posterior channel goes to the presacral nodes
- Skip metastases are rare (< 5%)</li>















# Material :

#### • October 1998 to October 2003,

- 123 patients with cervical cancer stage IA2-IB1.
- A systematic full pelvic laparoscopic lymphadenectomy was performed in all cases.

# **Results** :

- 1 sentinel node (or a group of 2 or 3 adjacent sentinel nodes) were found in
   97.5 % of cases
- When looking at the rate of detection by pelvic side, it is 87%.
- In 6 patients, sentinel nodes were found in different places.

# **Results** :

Localization of the sentinel node:
86% in external iliac position (described by Leveuf and Godard)
14 %: Lucas-Championnière, obturator, common iliac, presacral



# **Results** :

 Metastases were found in the sentinel nodes in 24 % of patients.

 When the sentinel nodes were negative, the other pelvic nodes were always negative also, the negative predictive value =100%. Specific histological analysis of the sentinel node

- Serial sections (each 200µm)
- Immunohistochemical study with antibody against cytokeratins:
  - » Discovering micrometastases
  - » increasing the rate of node positive patients by 15 %

Early cervical cancer, risk of relapse after radical hysterectomy <u>Ph VAN TRAPPEN Lancet 2001</u>

Nodal metastases Micrométastases\* No nodal metastases

1/4 patients3/16 patients0/12 patients

\* Detection with RT-PCR looking for CK19 mRNA

# Material

Prospective series of 43 patients
January 2001 to may 2004
Mean age = 41 years
Squamous carcinoma = 31 (72%), adenocarcinoma = 12.

• Tumoral diameter > 2 cm = 20 (46%).

# Method

- All the nodes (sentinel and non sentinel) were extensively analyzed.
- Serial sectioning each 200 µm with HES staining.

 If the node was negative with this technique, an immunohistochemical analysis with a anti-cytokeratins antibody was performed on all sections.

#### • Detection rate of the sentinel node = 100 %.

### 3 patients positives with frozen sections (8%)

1 patient with macrometastasis in a SN with the classical histological technique
6 cases of micrometastases.
Of these, 3 were real micrometastases
(< 2mm and > 200µm)
And 3 were tumor cells embolism (< 200µm)</li>















 Of the 6 cases with micrometastases, these were located in 3 cases in the SN, but in NSN in 3 patients.

15 % of micrometastases.

Negative predictive value of the SN = 91.6%.
But 3/10 (30%) false negative rate.

# Correlation between SN and NSN

	NSN -	NSN +	Total
SN -	33	3	36
SN +	6	1	7
Total	39	4	43

Name	Type of node	Nb of node	Serial sections with HES	IHC	Type of meta
Br	SN	4	_	-	
	NSN	18	-	+	Cell embolism
Ma	SN	1	-	-	
	NSN	12	+	+	< 2mm
Ka	SN	2	-	-	
	NSN	39	+	+	< 2mm

Explanations for the false negative cases

- No isotopic detection in 27 cases, including the 3 false negative cases.
- Multiple channels of drainage.
- Lost of nodal material during the frozen sections procedure.
- Metastases inside the parametrium.

- Mean follow-up of 22 months (4-38).
- Recurrence occurred already in 1 patient (2.8%).
- It was a squamous Ib1 cervical carcinoma with LVSI, all pelvic nodes were negative with classical histological exam, but a micrometastasis onto a SLN was detected only with IHC. The recurrence was either in the pelvic area and distal (liver metastasis).

## Conclusions

 SN biopsy seems a reliable technique when looking with classical histological technique.

 But multilevel sectioning with cytokeratin immunohistochemistry may identify more patients with nodal micrometastases.

 However it identifies cases where micrometastases were present in nonsentinel nodes when the sentinel node was negative.

## Conclusions

 This high false-negative rate of the sentinel node biopsy rises questions about the validity of the sentinel node concept in cervical carcinoma.

• A multicentric study is ongoing in France in order to elucidate the place of SN biopsy in early cervical cancer.