

Could we make complete cytoreduction easier in case of advanced ovarian cancer ?

F. Guyon¹, E. Stoeckle¹, S. Croce², M. Kind³, A. Floquet⁴
 Departments of ¹Surgery, ²Pathology, ³Radiology, ⁴Oncology

Department of Gynecologic Oncology, Institut Bergonie, Regional Cancer Center, Bordeaux, France

Background

Recent evidence suggest that complete resection of all disease provides a survival advantage.^{1,2} To improve the rate of complete cytoreduction, extensive surgical techniques such as diaphragm and bowel resection have been increasingly utilized. Although feasible, these procedures are associated with increased complexity. The aim of the study was to determine if the use of a new surgical equipment affects the rates of optimal and safe surgery in case of advanced ovarian cancer.

¹Du Bois A et al. Role of surgical outcome as prognostic factor in advanced epithelial Cancer: a combined exploratory analysis of 3 prospectively randomized phase 3 multicenter trials. Cancer 2009;115:1234-44.

²Chi DS et al. What is the optimal goal of primary cytoreductive surgery for bulky stage IIIC epithelial ovarian carcinoma (EOC)? Gynecol Oncol 2006; 103:559-64.

Method

19 patients with a FIGO stage IIIC high grade serous ovarian cancer underwent primary surgery between January and June 2012.

Clinical and pathologic data were abstracted.



Results

Patients characteristics

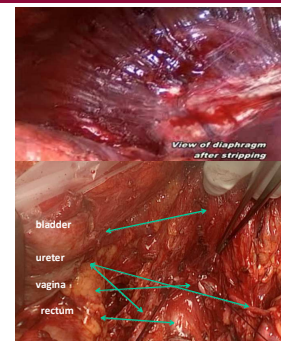
Patients	19
Average age	63.8
PS	
0-1	73.7%
2-3	29.7%
ASA	
1-2	86.4%
3-4	13.6%
Peritoneal index	17 (12-28)

In each case, a complete cytoreduction was achieved during primary surgery.

Extensive surgical techniques were needed for all patients: diaphragm resection in all the cases, splenectomy in 60% and bowel resection in 40%.

Other surgical procedures

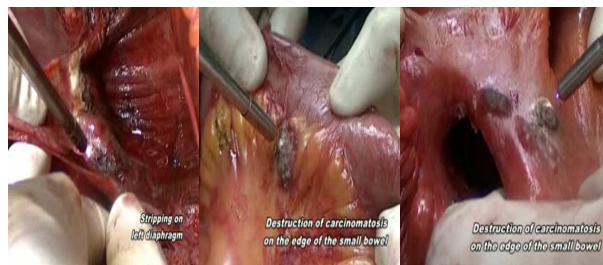
Hysterectomy with bilateral oophorectomy	100%
Para-aortic lymphadenectomy	100%
Pelvic lymphadenectomy	100%
Omentectomy	100%
Other	80%



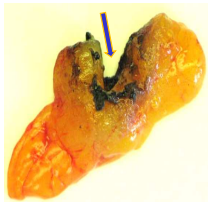
For all patients, we used the PlasmaJet system, an electrically neutral energy source. It permits the precise ablation of unwanted tissue with minimal damage to the adjacent and underlying structures. It allowed us to destroy the tumor nodules on the surface of the small intestine without resection. Ablation of diaphragmatic peritoneum was facilitated (absence of muscular contractions).

Anatomopathologic findings

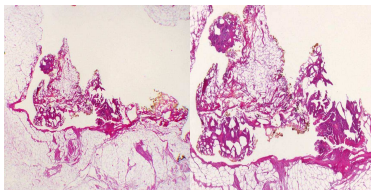
Macroscopic and microscopic analysis were performed before and after the plasma jet treatment. At the histological level, we observed diffuse lysis of the cancerous cells.



Macroscopy: Peritoneal nodule



Microscopy: PlasmaJet effects on tissue



One major complication was observed

Mean duration of surgery	240 mn
Infection	5.2%
Bleeding (3-4)	10.4%
Fistula	1 case (5.2%; medical treatment)
Venous complications	5.2%
Median hospital stay duration	11.8 days

Conclusions

Complete cytoreductive surgery followed by platinum-based chemotherapy is the goal of treatment of advanced ovarian cancer. The use of PlasmaJet in such cases is feasible. Destruction of carcinomatosis lesions on the edge and on the serous of the bowel is possible. It could permit reduction of the number of intestine resection. It seems to permit ablation of diaphragmatic peritoneum more easily. Further studies are needed.