

Introduction

Compared to other cancers of the female reproductive system, ovarian cancer is the fifth most common cause of cancer-related death. Three-quarters of all cases of ovarian cancer at diagnosis are in stage III, and 26 percent are in stage IV. The complete resection of all visible macroscopic tumour during upfront cytoreductive surgery has been demonstrated to be the single most important prognostic factor in advanced stage disease. Amaximal cytoreduction followed by combined chemotherapy is the cornerstone treatment for these individuals. The primary and the best imaging method for preoperatively identifying adnexal masses is transvaginal ultrasonography. The most often used diagnostic method in clinical practise to evaluate the degree of tumour spread and the existence of peritoneal carcinomatosis is dedicated multidetector computed tomography procedures with standardised peritoneal cancer index forms.

Aim of the work

To detect feasibility of advanced ultrasound by professional in the detection of postoperative residual tumor in cases of advanced ovarian cancer in comparison with computed tomography.

Subjects and Methods

Atotal of 30 individuals were recruited in this study. Inclusion criteria included patients with epithelial ovarian cancer and advanced ovarian cancer (stage III – IV) after surgery of any age. Patients with secondary ovarian cancer were excluded as well as patients with non epithelial ovarian cancer, non operable advanced ovarian cancer or patients who are medically unfit for extended radical surgery. All the study participants were subjected to postoperative advanced ultrasound and computed tomography after one month and assessed advanced ultrasound score (site and criteria of the implants regarding size, echogenicity, heterogenicity, invasion, sliding and vascularity) and peritoneal carcinomatosis index PCI.

Results

Table 1: Distribution of the studied cases according to advanced ultrasound score (n = 30)

Advanced ultrasound score	No.	%
Implants		
Absent	22	73.3
Present	8	26.7
Site of residual tumour		
Right copula of diaphragm	2	25.0
Rectosigmoid colon	2	25.0
Splenic hilum	1	12.5
Lower ileum	1	12.5
Left copula of diaphragm	1	12.5
Upper ileum	1	12.5
Size of residual tumor		
>1cm	4	50.0
1cm	2	25.0
<1cm	2	25.0
Echogenicity		
Hypoechoic	4	50.0
Hyperechoic	2	25.0
Mixed echogenicity	2	25.0
Invasion		
No invasion	4	50.0
Invasion of serosa of ileum	2	25.0
Invasion of musculosa of rectosigmoid colon	2	25.0
Sliding		
Negative	4	50.0
Positive	4	50.0
Vascularity		
4	4	50.0
3	2	25.0
1	2	25.0

Table 2: Distribution of the studied cases according to postoperative CT PCI (n = 30)

Postoperative CT PCI	No.	%
Lesion		
Absent	24	80.0
Present	6	20.0
Region of lesion		
Right upper	2	33.3
Left upper	1	16.7
Pelvis	1	16.7
Left hypochondrium	1	16.7
Right upper, Left flank,pelvis	1	16.7
Site		
Right copula of diaphragm	2	33.3
Rectosigmoid colon	2	33.3
Left copula of diaphragm	1	16.7
Splenic hilum	1	16.7
Size of lesion		
>1cm	4	66.7
1cm	2	33.3
<1cm	0	0.0
Lesion size score		
LS 0	24	80.0
LS 2	6	20.0
Total PCI score		
0	24	80.0
2	6	20.0

Table 1 shows assessment of residual tumor after surgery by one month by advanced ultrasound score regarding; Implants which were absent in 22 cases (73.3%) and present in only 8 cases (26.7%). Site of implants; 1 case was in the lower ileum (12.5%), 1 case in the upper ileum (12.5%), 1 case in the splenic hilum (12.5%), 1 case in the left copula of diaphragm (12.5%), 2 cases in the right copula of diaphragm (25%) and 2 cases in the rectosigmoid colon (25%). Size of implants; which was <1cm in 2 cases (25%), 1cm in 2 cases (25%) and >1cm in 4 cases (50%). Echogenicity; the implants were hyperechoic in 2 cases (25%), mixed echogenicity in 2 cases (25%) and most of them were hypoechoic about 4 cases (50%). Invasion; there was no invasion in about 4 cases (50%), invasion of serosa of ileum in 2 cases (25%) and invasion of musculosa of rectosigmoid in the other 2 cases (25%). Sliding; which was negative in half of cases (50%) and positive in the other half (50%) and vascularity of these implants; with score 1 vascularity in 2 cases (25%), score 3 vascularity in 2 cases (25%) and score 4 vascularity in 4 cases (50%).

Table 2 shows residual tumor after surgery by one month using CT-PCI score regarding; Lesion which was absent in 24 cases (80%) and only present in 6 cases (20%). Region of the abdomen in which the lesion was present; with 2 cases in right upper (33.3%), 1 case in left upper(16.7%),1 case in pelvis (16.7%), 1case in left hypochondrium (16.7%) and 1case in multiple regions; right upper, left flank and pelvis (16.7%).Site of lesion with 1 case in left copula of diaphragm (16.7%), 1 case in splenic hilum (16.7%), 2 cases in right copula of diaphragm(33.3%) and 2 cases in rectosigmoid colon (33.3%).Size of lesion with 2 cases equal to 1cm (33.3%) and 4 cases more than 1 cm (66.7%).

Conclusion

Both advanced ultrasound by professional and enhanced computed tomography have the ability to assess residual tumour in the pelvis and upper abdomen (suboptimal cytoreduction). Both can detect lesions equal to and more than 1cm but advanced ultrasound can detect small lesions (less than 1cm). Enhanced computed tomography can't differentiate between malignant residual and early post-operative oedema of tissues (benign condition) but advanced ultrasound has the ability to differentiate between benign and malignant lesions because it has features that are unique to it which are the direct visualization of vascularization of the tumour and the dynamic aspects of the examination.