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High rate of complications in patients with carcinoma of the cervix surgically treated after radical radiotherapy

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With the aim to improve the results of treatment of patients who had advanced carcinoma of the uterine cervix and were radically irradiated, a group of 49 patients underwent hysterectomy two to 24 months after completion of radiotherapy, among whom for only 43 patients data were available.
Radiotherapy consisted of 40 Gy external beam irradiation to true pelvis, low dose intracavitary treatment to a total dose 40 Gy to point A, and parametrial irradiation 16 to 20 Gy, shielding the place where radioactive sources were positioned during intracavitary therapy.
Necrosis, persistent cervical carcinoma, recurrent carcinoma, and in patients younger than 50 years no evidence of disease (NED) with dysplasia were indications for the surgical treatment.
Hysterectomy with bilateral oophorectomy was as conservative as possible but severe complications, such as ureteral stenosis (five cases), recto-vaginal fistula (three cases), vesico-vaginal fistula (two cases), recto-vesico-vaginal fistula (one case) occurred. Asymptomatic frozen pelvis as a mild complication occurred in 10 cases. One patient died postoperatively because of dehiscence and abdominal wall necrosis. In 17 (39.5%) of 43 patients complications occurred, although asymptomatic frozen pelvis was not taken in account. We believe that such a combined treatment is only for selected cases.
Key words: cervix neoplasms-radiotherapy; hysterectomy, surgical treatment; postoperative complications

Introduction

Radical radiotherapy is the treatment of choice for carcinoma of the uterine cervix stages IIB and III.[1] With radical radiation therapy and careful intracavitary techniques, central recurrences are extremely rare, an incidence of approximately 1 %.[2] In another report, in a significantly larger group (1801 patients) treated with radiation alone, the central failure rate was approximately 3 %.[3]

At the Hammersmith Hospital after radical radiotherapy, usually combined with cisplatin, simple total abdominal hysterectomy with bilateral salpingo-oophorectomy may be indicated as a "central debulk" to remove central disease if the cervical smear or biopsies should remain positive or if the smear or biopsies, having been negative, become positive again.[4]

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There are some controversy about the benefit of preoperative irradiation in the treatment of cervical carcinoma. Data from the M.D. Anderson Hospital showed an improved pelvic control rate, as well as a small increase in survival, when patients with bulky Stage IB-IIA-B carcinoma of the cervix were treated with preoperative irradiation followed by extrafascial hysterectomy. In such a combination of irradiation and surgery a high rate of complications was observed (from 8 to 17.5%).[5]

To define the complications after radical radiotherapy and surgical therapy we retrospectively analysed the patients who had undergone such sort of treatment at the Institute of Oncology in Ljubljana

Material and methods

In a non-randomized group of 49 patients, in the years from 1981 to 1991, all patients who underwent hysterectomy with bilateral oophorectomy were, prior to the surgical treatment, radically irradiated. But the data were available only for 43 patients, others came out of control because they were from another country.

With combined tele- and brachytherapy doses to the central portion of the cervical tumor were over 80 Gy (40 Gy teletherapy and 40 Gy intracavitary insertion of Cesium-137). As most of the patient were still irradiated to the pelvic wall, although the center where Cesium was positioned was shielded by a led block, doses under the shield were approximately 2 to 3 Gy.

So we believe, the center was overirradiated. Among our patients persistent and recurrent carcinoma was evidently present in 7 out of 43 (16.2%) patients although the intracavitary irradiation was carefully performed. In these cases we did not try to reirradiate the center. As in necrosis recurrent or persistent carcinoma could not be established before operation, these patients underwent surgical treatment as well (9 out of 43 patients or 20.9%).

In all patients hysterectomy with bilateral oophorectomy was performed.

Indications for surgical treatment were as follows: residual disease, recurrent carcinoma, cervical necrosis, and vaginal dysplasia with no evidence of recurrent or persistent carcinoma. In only one elderly patient the indication for the surgical treatment was enlarged uterus due to the piometra with consequent general symptoms, whereas the second patient underwent surgery because of ovarian tumours (Table 1).

Patients ranged from 26 to 78 years (median 44 years). At the beginning of the treatment the disease was classified according to FIGO stages as stage IB four cases, stage IIA two cases, stage IIB 27 cases, and 10 cases as stage III.

All patients underwent surgical treatment between the second and 24th month (median 6th month).

Residual and recurrent disease was preoperatively verified. In patients with no evidence of disease (NED) with vaginal dysplasia in the operative specimen in 10 cases carcinoma was present, in one case, only in an enlarged lymphnode, micrometastasis was found and in 15 cases no carcinoma was present. In patients with necrosis of cervix they underwent surgical treatment and in three out of 9 carcinoma were still present (Table 2).

Table 1. Indications for surgical treatment after radical radiotherapy.

Indications	No. of pts.
Residual disease	5
Recurrent disease	2
NED and dysplasia	25
Necrosis of cervix	9
Other	2
Total	43

NED - No evidence of disease.

Table 2. Postoperative pathohystology of patients without evident carcinoma after radiotherapy (n = 34).

Preoperative status	Pathohystology	
	Positive	Negative
NED and dysplasia	9 (+ 1)*	15
Necrosis of cervix	3	3
Total	13	21

NED – No eveidence of disease.
* Patient with positive lymph nodes.

According to the glossary for reporting complications of treatment in gynaecological cancers, we divided complications to the complications of gastrointestinal tract, urinary tract and pelvic soft tissues.[9] No evident complications were observed on vascular tissue, cutaneous tissue, peripheral nerves and hemopoetic tissue.

Results

Gastrointestinal complications

Evident gastrointestinal complications developed in 8 (18.6%) of 43 patients (Table 3).

Three patients suffered from rectal bleeding (G1b), but bleeding was occasional and required only conservative treatment.

In three patients recto-vaginal fistula developed (G3a), in one patient combined with vesico-vaginal fistula. All of them required surgical treatment. One patient died after bowel resection due to rectal necrosis after stool derivation (G4).

In one patient rectal bleeding required stool derivation, she died six months later. After brachytherapy of recurrent disease a huge necrosis developed in the true pelvis.

In one patient sigmoid fistula developed (G3a), and transversostomia was performed.

Urinary complications

Evident urinary complications developed in 10 (23.2%) of 43 patients (Table 4).

Bladder and urethra

Mild or occasional hematuria (G1b) developed in three patients. In one patient hematuria, combined with urine incontinence, required major surgery with urinary derivation (G3a). Vesicovaginal fistula (G3d) developed in two patients. In one patient surgical closure was done and the patient is quite well. The other patient died of recurrent disease.

Ureter

Unilateral ureteral stenosis developed in three patients, bilateral in two cases (G3a). In one patient with bilateral ureteral stenosis surgical ureterolysis was performed, in one patient with unilateral ureteral stenosis reimplantation was done. The other three patients have had only percutaneous nephrostomy because of the evident recurrent carcinoma.

Complications of pelvic soft tissue

Asymptomatic frozen pelvis developed in 10 (23.2%) of 43 patients, in two patients it was

Table 3. Gastrointestinal complications after radiotherapy and surgery according to propose glossary[9] (n = 43).

Complications		No. of pts.
Rectum	G1b	3
	G3a	3
	G4	1
Sigmoid colon	G3a	1
Total		8 (18.6%)

Rectum:
G1b:Mild or occasional rectal bleeding with or without mucosal hyperemia and/or oozing of blood and/or teleangiectasia. G3a:Recto-vaginal fistula. G4:Death due to complication.
Sigmoid colon: G3a:Fistula.

Table 4. Urinary complication after radiotherapy and surgery according to propose glossary[9] (n = 43).

Complications		No. of pts.
Bladder	G1b	2
	G3a	1
	G3d	2
Ureter	G2b	2
	G3a	3
Total		10 (23.2%)

Bladder:
G1b:Mild or occasional hematuria with or without mucosal hyperemia and/or teleangiectasia.G3a:Hematuria requiring major surgery or embolisation.G3d:Early or late vesico-vaginal fistula with permanent anatomical and/or functional damage.
Ureter:G2b:Ureteral stenosis requiring surgery with subsequent normal renal function.G3a:Uretero-vaginal fistula and/or ureteral stenosis with subsequent inadequate renal function, or which resulted in a non-functioning kidney, or which required either nephrectomyor permanent nephrostomy.

combined with ureteral stenosis in one patient with vesico-vaginal fistula, in one patient with proctitis and in two patients with cistitis (Table 5).

Discussion

Following the patients during radiation therapy it is allowed to conclude about evolutionary aspects of the cervical lesion and its relative radiosensitivity. As the uterus is mobile, and parametrial infiltration had disappeared after radiotherapy, in some instances, especially in younger patients, they may undergo surgical intervention to remove the residual tumor.[10]

Complications developed after radical radiotherapy and surgeries are quite often, up to 39.5% (Table 6), when we do not take in account asymptomatic frozen pelvis. Some authors reported high rate complications after radical radiotherapy up to 20.4%, although fistulas developed only in 1.6%.[11] Radiation doses to the rectum and bladder within the range 60 to 65 Gy are not found to be in relationship among bowel complications and we never exceed them during radiation treatment. The total dose 80 Gy to the point A and 60 Gy to the pelvic wall and parametria had been giving an acceptably low rate of late major complications.[12]

Rectal complications after remote afterloading intracavitary therapy for carcinoma of the uterine cervix are reported higher to 30%, among them severe only 2%.[13]

Minor complications after combined radiotherapy and surgery are reported after preoperative radiation, although ureteral fibrosis in the pelvis are also described, but doses to the cervix do not exceed 70 Gy.[14]

Conclusion

This study does not define the therapeutic value of combined radical radiotherapy and surgery in patients with residual or recurrent carcinoma of the uterine cervix. As in our material four different stages of disease were treated by the same mode, it is impossible to get the real survival for these patients. However, due to the nature of this disease, successful treatment will be at the price of a high complication rate. But we believe that such a treatment could be obtained only in a selected cases.

Table 5. Pelvic soft tissues complications after radiotherapy and surgery according to propose glossary[9] (n = 43).

Frozen pelvis		No. of pts.
Asymptomatic (G2a)		10
Combined with:	ureteral stenosis	2
	vesico-vag. fistula	1
	cystitis	2
	proctitis	1
Total		16

Frozen pelvis:G2a:Fibrosis involving at least one parametrium as far asthe pelvic side wall, and/or asymptomatic frozen pelvis.

Table 6. Gastrointestinal and urinary complications after radiotherapy and surgery (n = 43).

Complications	No. of pts.
Gastro-intest. complications	7
Urinary complications	9
Combined gastro-intest. and urinary complications	1
Total	17 (39.5%)

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