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PROGNOSTIC FACTORS AFFECTING THE RESULTS OF SURGICAL TREATMENT OF CERVICAL CANCER

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From October, 1963 to December, 1992, 1213 cases with cervical cancer were treated surgically in our hospital, among whom 922 cases, including 305 in stage 0, 123 in stage I_A, 212 in stage I_B, 265 in stage II_A, 17 in stage II_B, were operated before February, 1990. Among the 617 available cases, excluding those in stage 0, the five-year survival rates 95.1% in stage I_A, 91.0% in stage I_B, 83.1% in stage II_A, and 59.0% in stage II_B, respectively. The results showed that cervical tumor greater than 4 cm in diameter, invasion in muscular layers, lower degree of differentiation and pelvic lymph nodes metastasis would lead to worse therapeutic effects. The method of pelvic lymphadenectomy, pathological types, and ages of the patients, however, did not at all correlate with the survival rates of the patients. For those who have risk factors mentioned above active adjutant treatments are indicated.

Key words: Cervix neoplasm surgery, Risk factors prognosis

From October, 1963 to December, 1992, 1213 cases with cervical cancer, including 543 cases which have been reported before,[1,2] were treated surgically in our hospital. Some factors affecting the curative effect are to be analyzed in the article and the therapy on the high risk patients will be adjusted in order to improve the survival rate.

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CLINICAL MATERIALS

A total of 1213 cases were staged according to International Federation of Gynecology and obstetrics (FIGO), among whom there were 305 cases in stage 0, 129 in stage I_A, 274 in stage I_B, 459 in stage II_A and 46 in stage II_B. The cases, aged from 22 to 70 years old, were all married. Their medium age was 54.4 years old. Pathological analysis: 1106 squamous cell carcinomas (91.2%), 106 adenocarcinomas (8.7%) and 1 undifferentiated carcinoma (0.1%).

Surgical procedures: 1) Subradical hysterectomy were performed on 421 cases in stage 0 and I_A, among whom radical hysterectomy and pelvic lymphadenectomy were performed on 13 of 129 cases in stage I_A. 2) Pelvic lymphadenectomy and radical hysterectomy (Werthein's operation) were performed on 479 cases, and pelvic lympha-denectomy with stripping technique and radical hysterectomy on 300 cases in stage I_B, II_A and II_B.[3]

RESULTS

Five-year Survival Rates

922 cases were treated surgically before February, 1990. The 617 available cases, except those who were in stage 0, were followed up for 5 years. Their five-year survival rates were 95.1% in stage I_A, 91.0% in stage I_B, 83.7% in stage II_A and 59.0% in stage I_B, respectively.

Factors Affecting the Results of Surgical

Treatment

Relationship between type of pelvic lymphadenectomy and prognosis

From 1983 to 1989 traditional pelvic lymphadenectomy and radical hysterectomy (Werthein's operation) were performed on 291 cases. From 1990 to February, 1991, pelvic lymphadenectomy with stripping technique and radical hysterectomy were performed on 89 cases. The 3-year survival rates of the former type were 94.6% (106/112) in stage I_B, 85.4% (153/179) in stage II_A and the 3-year survival rates of the latter type were 94.4% (17/18) in stage I_B, 84. 5% (60/71) in stage II_A. The prognosis of the two types of operations was not statistically significant ($P>0.05$) (Table 1).

Table 1. Relationship between curative effect and size of cervical tumor, pathology, invasion in muscular layers, differentiation, age, pelvic lymph node metastasis

	I_B		P	II_A		P
	case	survival		cases	survival	
cervical tumor≥ 4 cm	21	12	<0.05	64	43	<0.05
cervical tumor < 4 cm	91	84	<0.05	115	94	<0.05
invasion in m. 1	71	57	<0.05	127	91	<0.05
noninvasion in m. 1	41	39	<0.05	52	46	<0.05
ca. low differentiation	17	11	<0.05	49	30	<0.05
ca. m/n differentiation	95	85	<0.05	130	107	<0.05
squamous ca.	98	85	>0.05	157	125	>0.05
adenocarcinoma	14	11	>0.05	22	12	>0.05
pelvic lymph node (+)	15	10	<0.05	44	25	<0.05
pelvic lymph node (-)	97	86	<0.05	135	112	<0.05
age ≤ 35	10	8	>0.05	12	8	>0.05
age >35	102	88	>0.05	169	129	>0.05

* m. 1: muscular layers, ca: cancer, m/n: moderate/high

Relationship between cervical tumor size and prognosis

Among the series described above, traditional pelvic lymphadenectomy and radical hysterectomy (Werthein's operation) were performed on 112 cases in stage I_B and 179 in stage II_A. All the patients were followed for 5 years. The five-year survival rate of the series with lesions ≥4 cm was lower than that of those with lesions <4 cm ($P<0.05$) (Table 1).

Relationship between pathological types and prognosis

Among the series described above, there were 98 cases with squamous cell carcinoma and 14 with adenocarcinoma in 112 cases in stage I_B, and 157 cases with squamous cell carcinoma and 22 with adenocarcinoma in 179 cases in stage II_A. Among different histologic groups, the five-year survival rate was not statistically different ($P>0.05$) (Table 1).

Relationship between invasion in muscular layers of cervix and prognosis

Among the series described Above, there were 71 cases with invasion and 41 cases without invasion in 112 cases in stage I_B, and 127 cases with invasion and 52 cases without invasion in stage II_A. Among the patients in the same stage, the five-year survival rate was significantly different (P <0.05). The prognosis of the cases with invasion was poor (Table 1).

Relationship between differentiation of carcinoma

tissue and prognosis

Among the series described above, there were 17 cases with moderate and low differentiation and 95 cases with moderate and high differentiation in 112 cases in stage I_B, and 49 cases with moderate and low differentiation and 130 cases with moderate and high differentiation in 179 cases in stage II_A. Among the patients in the same stage, the five-year survival rate of the patients with moderate and high differentiation was higher than that of those with low differentiation. The difference was statistically significant ($P<0.05$) (Table 1).

Relationship between pelvic lymph node metastasis or non-metastasis and prognosis

Among the series described above, there were 15 cases with pelvic lymph node metastasis and 97 cases without pelvic lymph node metastasis in 112 cases in stage I_B, and 44 cases with pelvic lymph node metastasis and 135 cases without lymph node metastasis in 179 cases in stage II_A. Among the patients in the same stage, the five-year survival rate of the patients with pelvic lymph node metastasis was lower than that of those without pelvic lymph node metastasis. The difference was statistically significant ($P<0.05$) (Table 1).

Relationship between age and prognosis

Among the series described above, there were 10 young women cases (35 years old or younger) and 102 middle-aged women cases (older than 35 years old) in stage I_B, and 12 young women cases and 167 middle-aged women cases in stage II_A. The difference of five-year survival rates among different age groups were not statistically significant ($P>0.05$) (Table 1).

DISCUSSION

It is commonly accepted that the radical procedure of cervical cancer is an effective method of treating early stage cervical carcinoma and its prognosis is good. But some patients with pelvic recurrence or distant metastasis still exist. Therefore, investigators all over the world have been seeking high risk factors trying to find high risk patients from them and adjusting therapies in order to improve prognosis.

It is well known that clinical stages are the main factors affecting their prognosis. But as to the other factors, there is still a dispute. The survival rate of the series with cervical lesions greater than or equal to 4 cm is evidently lower than those whose lesions are smaller than 4 cm, which is consistent with the report by Bloss, et al.,[4] but inconsistent with the report by Smiley, et al.[5] Great volume of cervical tumor may result from endocervical growth which remains in a local position for a long time. Its complication of infection doesn't happen so often that the symptom appears very late and it is not easy to give an early diagnosis. Cervical cancer is developed and enlarged in cervix, leading to invasion in muscular layers, metastasis and poor curative effects.

Tumor differentiation shows the capability of the biological behavior of malignant tumor. The lower differentiation is, the greater the capability of biological behavior of malignant tumor will be, which is easy to lead to metastasis of malignant tumor. Our result shows that the survival rate of the patients with poorly differentiated tumor is lower than that of those with moderately and highly differentiated tumor, which is consistent with the report by Chang, et al. But Bfurke, et al. found out that there was no correlation between tumor differentiation and prognosis.

Traditional pelvic lymphadenectomy and pelvic lymphadenectomy with stripping technique are used in our hospital. The result of treatment of the series shows that the prognosis of the two therapies is not significantly different ($P<0.05$). Pelvic lymphadenectomy doesn't influence prognosis only on the basis of the surgical principle of removing tumors.

Invasion in muscular layers is closely related with cervical tumor size. The patients with greater cervical tumor size usually have longer course of disease, invasion in cervical muscle, more chances of metastasis and worse prognosis, which is inconsistent with the report by Smiley, et al. The results show that pathological type doesn't affect prognosis. If only there is enough excision extent, surgical treatment has the same effect for squamous carcinoma and adenocarcinoma, which is consistent with the report.[5] The patients with pelvic lymphatic metastasis have poorer prognosis. But age has no influence on the results of surgical treatment. The difference of prognosis between young women and middle-aged women in stage I_B and II_A is not statistically significant. In a word, these data show that the

following are high risk factors: pelvic lymphatic metastasis, cervical tumor greater than 4 cm, poor differentiation of cancer tissue and invasion in muscular layers.

Reasons for different high risk factors reported by different researchers: 1) different resource of materials; 2) mistaken measurement of different types of tumors; 3) different pathological materials; 4) different differentiation in different parts of tumor. So we should seek the effective methods, do some deep and careful researches in order to determine high risk patients, adjust the therapies so as to improve the curative effects.

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