SOLITARY PLASMACYTOMA OF BONE AND EXTRAMEDULLARY PLASMACYTOMA

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Among plasma cell disorders, solitary plasmacytoma (solitary-plasmacytoma of bone, SPB and extramedullary plasmacytoma, EMP) is rare as compared with multiple myeloma (MM). Furthermore, the relationship between solitary plasmacytoma and MM remains unclear. Between 1960 and 1994, 24 patients with SPB and 20 with EMP were treated. The criteria for diagnosis were: (1) No evidence of other lesions based on clinical and radiologic examinations; (2) Biopsy evidence of a plasma cell neoplasm; (3) Bone marrow biopsy specimen with negative findings (less than 10% plasma cell); (4) No anemia, hypercalcemia or renal involvement. The average follow-up period was 112 months (from 6 to 360 months). Fifty-four percent of patients with SPB and 40% of patients with EMP developed MM, however, there was no significant statistical difference between SPB and EMP (P <0.05). We suggested that solitary plasmacytomas be classified as two types, latent and aggressive. The former was histologically well-differentiated plasmacytomas. The latter was poorly differentiated tumors which easily progress to MM. The treatment of choice is wide excision or thorough curettage, by cryogenic necrosis with liquid nitrogen or cautery of the bony wall with phenol and the cavity filled with bone grafts or cement. All patients with apparently isolated plasmacytoma should be given if the tumor turns out to be poorly differentiated, in order to delay their progression to MM.

Key words: Bone neoplasms, Plasmacytoma, Multiple myeloma

Multiple myeloma (MM) is common, while solitary plasmacytoma of bone (SPE) and extramedullary plasmacytoma (EMP) is rare. From 1960 to 1994, 24 patients with SPB including 5 reported and 20 patients with EMP were treated at this hospital. The results from six to three hundred and sixty months of follow-up showed these results that some patients were alive for long periods, some had local recurrence or new solitary lesions at distant sites; some progressed to MM. The development and change of 44 cases in this study presents the complexity of SPB and EMP. It reports as follows.

CLINICAL MATERIALS

Criteria for Diagnosis

The 44 cases in this study were up to the following criteria for diagnosis: (1) No evidence of other lesions based on clinical and radiologic examinations; (2) Biopsy evidence of a plasma cell neoplasm; (3) Bone marrow biopsy specimen with negative findings (less than 10% plasma cell); and (4) No anemia, hypercalcemia or renal involvement.
General Data

There were 18 males and 6 females in the patients with SPB, ranging in age from 25 to 59 years with an average of 43.6 years, while 16 males and 4 females in the patients with EMP, aged 22 to 78 years with an average of 59.2 years. In both groups males were more than females and the patients with EMP were older than those with SPB.

The location of the Lesion

In the SPB group, the extremity and the anial skeleton were fifty-fifty. There were 4 cases in the vertebral (cervicale 1, thoracicae 2, lumbarle 1), 4 in the collar bone, 3 in the frontable humerus and rib respectively, 2 in the femoris and tibia respectively and 1 in the sternum, scapula and ossacranii respectively. In the EMP group, most EMP occurred in the head and the neck: 7 cases in the cavitas nasi, 4 in the laryngopharynx, 2 in the fossa poplitae and enhraspin on epidural respectively and 1 in the lacrimal mons, clavicula supraspinata, mamma, thoracic wall, fossa axillary respectively.

The Differentiation of Plasmacytoma Cells

The plasmacytoma cells could be divided into well-differentiated and poorly-differentiated according to its differentiation degree. The well-differentiated type was defined latent and the poorly-differentiated type aggressive. Nineteen cases belonged to the latent type (SPB 8, EMP 11), in which plasmacytoma cells well-differentiated: mature plasma cells with round or oval nuclei, well-distributed and abundant cytoplasm. Twenty-five cases belonged to the aggressive type (SPB 16, EMP 9), in which microscopic examination showed poorly-differentiated plasmacytoma cells with anocytosis, nuclear irregularity, multinucleation and pleomorphism.

FCM

The nuclear DNA content of plasmacytoma cells in tissue specimens from 11 cases (SPB 8, EMP 3) were determined by flow cytometry (FCM), the results of which showed 4 cases with DNA diploid and 7 aneuploid.

Treatment

All patients in this study were treated by operation. In SPB group, the lesions in the rib or collar bone were treated by wide excision, all others were treated by thorough curettage. Twelve tumors cavities were treated by devitalization with phenol and 5 with liquid nitrogen, in which 10 tumor cavities were filled with bone grafts and 5 with cement. In EMP group, 8 cases were treated by marginal excision and 12 by curettage. Thirty-four cases (SPB 18, EMP 16) were given radiotherapy after operation, ranging in doses from 40 to 50 Gy. Twenty-five cases (SPB 16, EMP 9) received chemotherapy with melphalan and prednisone ranging in the course of treatment from 6 to 18 months.

RESULTS

The average follow-up period to 44 patients in this study was 112 months.

SPB

Thirteen of the 24 SPB cases progressed to MM from 11 to 242 months after operation. Three cases were found to have local recurrences from 6 to 13 months after operation and 3 new solitary lesions at distant sites from 24 to 140 months after operation (Table 1).

<table>
<thead>
<tr>
<th>Pathologic type</th>
<th>Number of cases</th>
<th>Local recurrence</th>
<th>New solitary lesion</th>
<th>Conversion to MM(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latent</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>2 (25)</td>
</tr>
<tr>
<td>Aggressive</td>
<td>16</td>
<td>1</td>
<td>2</td>
<td>11 (68.8)</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>1</td>
<td>3</td>
<td>13 (54)</td>
</tr>
</tbody>
</table>

Table 1: Follow-up results of 24 SPB cases