Asymptomatic meningioma case series

A cohort of consecutive patients incidentally diagnosed asymptomatic meningiomas from 1991-1998 were followed prospectively. All patients were followed for a minimum of 10 years or until they reached the endpoint of demonstrated tumour growth or died.

During follow-up, 35.4 % of the tumours grew, resulting in a 75 % 15-year growth rate by life-table statistics. The growth rates were similar in smaller (<2 cm) and larger tumours, while calcified tumours grew at a lower rate. The latter difference was, however, not statistically significant.

Long-term tumour growth of incidentally detected asymptomatic meningiomas appeared to be much higher than expected. This information needs to be considered when discussing surgery, since the indication for surgery may be stronger than previously stated, especially for younger patients with tumours that can be reached at low risk [1)].

The cases of 37 patients with a meningioma revealed incidentally by computerized tomography or magnetic resonance imaging, who were followed at least once by an additional imaging study, were reviewed. The tumour volume was calculated, to estimate the annual growth rate of the incidental meningiomas. Nine of the 37 patients (24.3%) showed a considerable increase (the annual growth rate > 1 cu cm/year) in their tumour volume (tumour growth). There was no significant difference in the follow-up period, age, or the volume of tumour between the patients with and without tumour growth. However, a multivariate analysis revealed that the likelihood of tumour growth independently and significantly increased according to a decrease in the age of the patients (Odds ratio 0.18 for one-standard-deviation change (ISD) 12.6 years, p = 0.042) and according to an increase in the volume of the tumour (Odds ratio 3.64 for ISD 4.46 cu cm, p = 0.042). The majority of patients with incidental meningioma can be apparently observed without any surgical intervention, because their annual growth rates are generally less than 1 cu cm/year. However, clinical and radiological observations would be advisable for these patients (especially young patients and patients with a large tumour), in view of the presence of rapidly growing tumours in some of the patients [2)].

The clinical records and imaging studies of 40 elderly (over 70 years) patients with asymptomatic meningiomas were analysed. The patients were followed up with repeated imaging studies, and changes in tumour size, clinical signs, and outcomes were evaluated.

There were 32 women and eight men with a mean age of 76.1 years. The mean follow up period was 38.4 months, ranging from 6 to 97 months. Six patients died during the follow up period from disorders other than the tumours, and one patient died as a result of the tumour. Twenty six patients (mean follow up period 41.8 months, range 10-97 months) showed no tumour growth. Fourteen patients showed tumour growth (mean follow up period 32.1 months, range 6-88 months). Five (four men and one woman) of these patients became symptomatic. Based on imaging analysis (1) calcification of the tumour was associated with no tumour growth (p=0.036), and (2) the tumour size at the initial diagnosis was related to subsequent tumour growth (p=0.016). Other possible factors related to tumour growth included sex and hyperintensity on MRI T2 weighted images.

In elderly patients with asymptomatic meningiomas, careful clinical follow up with imaging studies is important. The imaging features mentioned may contribute to prediction of tumour growth [3)].

A total of 113 asymptomatic meningiomas were analyzed by fine volumetry. A comparison of growth rates and patterns between incidental skull base meningiomas and non-incidental skull base meningiomas was made. Subsequently, materials obtained from 210 patients with symptomatic meningiomas who were treated in the authors' hospital during the same period were included for a biological comparison between skull base and non-skull base tumors using the MIB-1 index.

The 110 patients with IDMs included 93 females and 17 males, with a mean follow-up period of 46.9 months. There were 38 skull base (34%) and 75 non-skull base (66%) meningiomas. Forty-two (37%) did not exhibit growth of more than 15% of the volume, whereas 71 (63%) showed growth. Only 15 (39.5%) of 38 skull base meningiomas showed growth, whereas 56 (74.7%) of 75 non-skull base meningiomas showed growth ($p = 0.0004$). In the 71 IDMs (15 skull base and 56 non-skull base), there was no statistical difference between the 2 groups in terms of mean age, sex, follow-up period, or initial tumor volume. However, the percentage of growth ($p = 0.002$) was significantly lower and the doubling time ($p = 0.008$) was significantly higher in the skull base than in the non-skull base tumor group. In subsequently analyzed materials from 94 skull base and 116 non-skull base symptomatic meningiomas, the mean MIB-1 index for skull base tumors was markedly low (2.09%), compared with that for non-skull base tumors (2.74%; $p = 0.013$).

Skull base IDMs tend not to grow, which is different from non-skull base tumors. Even when IDMs grow, the rate of growth is significantly lower than that of non-skull base tumors. The same conclusion with regard to biological behavior was confirmed in symptomatic cases based on MIB-1 index analyses. The authors' findings may impact the understanding of the natural history of IDMs, as well as strategies for management and treatment of IDMs and symptomatic meningiomas [4].

1)
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