Letter to the Editor

Relationship between expression of cancer-related proteins and tumor invasiveness in thymoma

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1. Introduction

Distinction between non-invasive and invasive thymomas is almost impossible by histologic examination alone, because the morphology of invasive thymoma does not significantly differ from that of non-invasive thymoma [1,2]. However, tumor invasiveness is regarded as the most important factor affecting survival in thymoma [3].

In the present study, we examined the expression of some cancer-related proteins in thymoma by immunohistochemistry to determine whether the expression of these proteins is different between non-invasive and invasive thymomas.

2. Materials and methods

Thirty-eight randomly selected patients with thymoma who were treated surgically at Miyazaki Medical College were included in this study. Postoperative staging was made according to the Masaoka staging system [3]. There were 18 non-invasive thymomas (NT: clinical stage I) and 20 invasive thymomas (IT: clinical stage II, III or IV).

Surgically resected tissue samples previously fixed in formalin and embedded in paraffin were used in this study. Immunohistochemical staining was performed using specific antibodies against p53 (Dako, Glostrup, Denmark), bcl-2 (Dako), EMA (Dako), CEA (Dako), nm23-H1 (Novocastra Laboratories, Newcastle, UK) and Ki67 (Immunotech, Marseille, France).

3. Results

The positive staining was found as follows: p53 (NT: 5.6%; IT: 60%, P = 0.0009), bcl-2 (NT: 5.6%; IT: 25.0%, P = 0.230), EMA (NT: 0%; IT: 50%, P = 0.0088), CEA (NT: 5.6%; IT: 25.0%, P = 0.230), nm23-H1 (NT: 33.3%; NT: 80.0%, P = 0.009). The Ki67 labeling index of NT and IT was 2.95 ± 3.19 and 2.58 ± 4.71, respectively (P = 0.807).

Furthermore, there was a significant relationship between p53, EMA and nm23-H1 expression and clinical stage (Spearman rank correlation: p53: r-value = 0.731, P < 0.0001, EMA: r-value = 0.750, P < 0.0001, nm23-H1: r-value = 0.632, P = 0.0001). A trend toward relationship between bcl-2 and CEA expression and clinical stage was also found.

4. Discussion

Our results indicated a significant difference in p53 and EMA expression between non-invasive and invasive thymomas. Moreover, in non-invasive thymoma, p53 positive case was only one and none of our cases showed EMA expression. Thus, taken together, the expression of p53 and EMA might correlate with tumor invasiveness but not tumorigenesis in thymoma.

We also found a significant difference in nm23-H1 expression between non-invasive and invasive thymomas. Expression of nm23-H1 is thought to play a specific biological role in suppressing tumor metastasis [4]. However, our results indicated a positive relationship between nm23-H1 expression and tumor invasiveness. Therefore, the role of nm23-H1 in thymoma differs from that in other cancers.

We could not find any differences in the expression of bcl-2 and CEA between non-invasive and invasive thymomas. However, our data showed a trend toward relationship between CEA expression and clinical stages. Therefore, the possibility remains that expression of bcl-2 and CEA in thymoma might play roles in tumor invasiveness. Our results did not demonstrate a correlation between Ki67 expression and invasiveness in thymoma, indicating that non-invasive thymoma is similar to invasive thymoma with regard to proliferative activity.

In conclusion, we found significant differences in p53, EMA and nm23-H1 expression between non-invasive and invasive thymomas. The invasive nature of thymoma may be related to the expression of these cancer-related proteins.

References


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Letter to the Editor

Multiple aortic valve papillary fibroelastoma: do not miss the other one

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About 36% of the 410 cases of papillary fibroelastoma reported in the literature to date are located on the aortic valve. Multiple sites are rare (7.5%), essentially involving separate valves or in the left and right cavities [1]. Only one published case has reported multiple sites on the same aortic valve [2].

Three of the eight patients diagnosed with papillary fibroelastoma in our surgical unit presented double sites on the same valve. The first patient was a 49-year-old man hospitalized for a complete right hemiplegia. Transesophageal echocardiography (TEE) demonstrated a tumor, 12 mm in diameter, on the non-coronary cusp. Two small growths, with a long axis of 2 mm, on the right coronary leaflet were not revealed by TEE. Histological examination confirmed the diagnosis of three papillary fibroelastomas.

The second patient was a 64-year-old man hospitalized for transient monoparesis. TEE showed an echogenic mass, 7 mm in diameter, attached to the left anterior sigmoid valve. At surgery, we found a non-pedunculated tumor on the left anterior sigmoid valve and enlargement of the nodule of semilunar valve (NSV) on the non-coronary cusp. Histological examination confirmed the diagnosis of typical papillary fibroelastoma for the primary tumor and for the fragment removed from the NSV.

The third case was a 40-year-old woman with an aneurysm of the ascending aorta. At surgery, close examination of the aortic leaflets revealed two growths located on the nodules of the left and the right coronary leaflets. The valve was preserved. Histological examination confirmed a typical fibroelastoma for the larger tumor, and Lambl’s excrescence for the smaller tumor.

Based on these extremely unusual findings, several points merit discussion.

Multiple papillary fibroelastomas are rarely reported: only 31 cases have been reported among the 410 published cases of fibroelastoma. In most cases, multiple tumor sites were intraventricular or involving separate cardiac leaflets [3]. Only one case of multiple tumor sites on the aortic valve has been published in the literature [2].

The true incidence of multiple papillary fibroelastomas may be underestimated, as the diagnosis may be missed on TEE. In one of the three cases described here, the diagnosis was incidental, as the tumors were discovered during surgery.

It is not sufficient to treat only the tumor visible macroscopically, as smaller tumors on another aortic cusp may be missed. No cases of recurrence of papillary fibroelastoma after surgical excision, detected by TEE [4], have been reported in the literature, but the recurrence of embolic events has never been estimated; each valve must therefore be carefully examined to exclude any ‘hidden tumors’. Excrences on valve leaflets or hypertrophic NSV may also need to be resected. The diagnosis can be confirmed by histological examination.

The etiology of papillary fibroelastoma is unknown [4], but our third case presented a surprising finding: coexistence of a papillary fibroelastoma and Lambl’s excrescence on the same valve, which constitutes an additional clinical, not histological, argument in support of the hypothesis that these lesions correspond to different stages of the same tumor [5].

References


Letter to the Editor

Scope-guide of stent-graft for acute dissection

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We read the article by Orihashi et al. entitled ‘Endovascular stent-grafting via the aortic arch for distal aortic arch aneurysm’ with great interest [1]. In this report, the authors detail the surgical technique of arch replacement using stent-graft via the aortic arch. We would like to add two important points to the discussion in this article. This technique is highly useful, especially in the replacement of the aortic arch in acute dissection [2]. Stent-graft efficiently reinforces the dissected distal aorta to prevent the