Unresectable bulky Thymic Cancer rendered operable with Radiation Therapy

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Abstract

The role of radiation for unresectable thymic tumors is not well established. We report a case in a young woman with an initial bulky upper mediastinal tumor that was permanently controlled and a subsequent large lower mediastinal tumor was rendered respectable with radiation therapy.

Keywords: thymic tumor, thymic carcinoma, radiation therapy, surgery

Introduction

Thymus cancers are rare. The standard preferred treatment has been complete resection. The role of radiation has been reserved for postoperative treatment or for palliation. Response to radiation is not well documented. Less well defined is whether inoperable tumors can be rendered operable.

Case report

A 31-year-old woman was suffering from progressive left shoulder pain. CT scan showed bulky upper mediastinum and left supraclavicular mass. CT guided needle biopsy in September 2011 resulted in the diagnosis of thymic carcinoma. There were also adjacent adenopathy and left sided pleural based nodules. It was considered unresectable and she was treated with cisplatin and VP16. She received 6 cycles with a mild response and then progression. She was started on carboplatin and paclitaxel and with no response was referred for radiation therapy. (Figure 1) She completed 66.4 Gy to the bulk of the mass in May 2012 with good response with marked shrinkage 4 years later (Figure 2). She was continued on the carboplatin and paclitaxel and received two more cycles. With the upper mediastinal mass controlled and the other disease relatively stable, she was followed. Two years post diagnosis, it appeared the pleural based masses were progressing. She was treated with 4 cycles of Carboplatin-Paclitaxel with disease stabilization. In the interim she delivered her 6th child. On follow up in August 2016, the pleural disease appeared to be progressing. She was restarted on Carboplatin-Paclitaxel. With further progression, she returned for radiation therapy as the disease was considered unresectable. The large left posterior sulcus mass measured 8 x11x 15 cm. (Figure 3). There was other pleural based disease, but no evidence of distant metastases. The bulky posterior sulcus tumor responded dramatically (Figure 4) early in the radiation therapy treatment and the feasibility of resection was discussed with thoracic surgery. Radiation therapy was stopped at 60 Gy and she underwent thoracotomy in September 2017 with resection of the residual bulk mass and four other pleural based masses. A thorough review of this tissue and previous biopsied resulted in the diagnosis of WHO type B2 (with focal areas of B3) thymoma. For the remaining pleural based disease, in May 2018 she was started on Sunitinib and then switched to Premetrexed. The pleural based disease has fluctuated some in size, but overall is considered stable through June 2022 with no progression in the area of the bulky lung disease. (figure 5).
Figure 1: April 2012- left upper mediastinal/superior sulcus mass. A- axial, B-coronal

Figure 2: August 2016 (4+ years post treatment). A-axial B-coronal. Shrunken calcified mass.

Figure 3: April 2017. As measured at the T10-11 interspace, the bulky left post sulcus mass pre radiation (A-axial, B- coronal)
Discussion/Conclusion

Since thymic tumors are rare, the exact role of radiation therapy is difficult to ascertain. There is good evidence that in patients with more advanced disease after resection postoperative radiation increases control [1]. The role in bulky unresectable tumors is mostly unknown. Like our patient, most patients are not referred until the disease is quite advanced (usually after chemotherapy) and the role of radiation is an attempt at palliation. In our institution, medical record review shows that between 2005 and 2021, only 27 thymoma patients were seen, compared to more than 3,000 lung cancer patients. Six patients were referred for bulky unresectable tumors. Most were treated for palliation and not followed with imaging. Including our patient, one other patient was rendered operable and is alive 3 years later without evidence of disease. In our patient, both bulky tumors responded well. The initial upper mediastinal tumor has been permanently (>10 years) controlled. The subsequent bulky lower thoracic mass responded well enough to allow for surgery. Although not rendered disease free (there was residual pleural disease), her life has clearly been extended. In that regard, a small study (22 patients)
[2] evaluated the feasibility of preoperative chemotherapy and radiation. The patients were already operative candidates and most had tumors <8cm. Although only 10 (48%) patients had a measurable partial response, they concluded that the complete resection rate was higher than the historical data.

So, while responses are not uniform, our experience would support in patients without distant metastatic disease an aggressive approach with radiation and surgery.

References
