

Peer Review File

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Reviewer A

Interesting article. It would be good to rectify a number of the spelling and grammatical mistakes which are in the manuscript. Given the 2 months which have passed since treatment, do this make the case particularly noteworthy? In the discussion it would be good to add subheadings to guide the reader and improve the ease of flow.

Comment 1: It would be good to rectify a number of the spelling and grammatical mistakes which are in the manuscript.

Reply 1: we have modified our text as advised with the help of AiMi Academic Services (www.aimieditor.com) for English language editing and review services.

Comment 2: Given the 2 months which have passed since treatment, do this make the case particularly noteworthy?

Reply 2: From the time of submission, the patient is currently 5 months postoperatively, and has survived disease-free after more than 20 times of radiotherapy. It is one of the few patients who have survived so far. In addition, there are also unique characteristics in morphology and immune markers. The discussion part of this paper is described in detail, which is worthy of attention and research.

Changes in the text: see Page 1-2, line 18-27.

Comment 3: In the discussion it would be good to add subheadings to guide the reader and improve the ease of flow.

Reply 3: We have made some modifications according to the requirements, summarized according to the discussion content of each paragraph, explained and extended at the beginning of the paragraph, which is easy for readers to understand.

Reviewer B

This is an interesting case report of an elderly woman with NUT carcinoma. While no major advances in understanding or novel findings about NUT carcinoma were described, due to the rarity of the entity, it is a reasonable case report and discussion. The summary tables are useful.

The report would benefit from an English edit before publication.

Some terminology needs to be updated - the NUT gene name is now officially NUTM1. Gene names should be italicized.

The antibody clone for NUT should be included. What is the correlation between NUT IHC expression and NUTM1 fusions?

The morphology of this tumor appeared quite heterogenous. Is this unusual in NUT carcinomas? Did the IHC patterns (e.g. synaptophysin) or FISH findings differ between the two morphologic patterns of cells? What were the percentages of each pattern? Have either pattern been reported before (separately)? This appears to be the main "new" finding in this case report and so should be investigated and discussed further.

Comment 1: Some terminology needs to be updated - the NUT gene name is now officially NUTM1. Gene names should be italicized.

Reply 1: we have modified our text as advised.

Changes in the text: see the full text.

Comment 2: The antibody clone for NUT should be included. What is the correlation between NUT IHC expression and NUTM1 fusions?

Reply 2: We have modified our text as advised, the correlation between immunohistochemistry and FISH detection was also discussed in the discussion section.

Changes in the text: The antibody clone for NUT see Page 5, line 89; the correlation between NUT IHC expression and NUTM1 fusions see Page 9, line 192-206.

Comment 3: The morphology of this tumor appeared quite heterogenous. Is this unusual in NUT carcinomas? Did the IHC patterns (e.g. synaptophysin) or FISH findings differ between the two morphologic patterns of cells? What were the

percentages of each pattern? Have either pattern been reported before (separately)?

This appears to be the main "new" finding in this case report and so should be investigated and discussed further.

Reply 3: I am very grateful to the reviewers for making such good and valuable suggestions. Histologically, NUT carcinoma is generally composed of single and medium-sized poorly differentiated round cells, with little or eosinophilic cytoplasm. We reported two unique morphological changes, which have not been reported in the previous literature. The proportion of small spindle cells was about 20%, strong expression of P63, CK5/6, P40, and the proliferation index of Ki67 was relatively high, about 40%; the large and round cells accounted for about 80%, did not express CK5/6 and P40, but synaptophysin were focal positive, Ki67 index was about 10%, but both cells strongly expressed NUT and P63. At the same time there is no difference between the two morphological in FISH tests. Which suggested that small spindle cells tended to differentiate into squamous cells. This part has been described in detail in the article.

Changes in the text: see Page 4, line 79-80; Page 5, line 85-90 ;Page 9, line 178-183.