Reviewer's report

Title: Mutation analysis in exon 4 of the gadd45 gene in atypical fibroxanthoma

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Reviewer: Alexander Lazar

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This manuscript examines the expression of gadd45 and bax in atypical fibroxanthoma (AFX) and benign fibrous histiocytoma (BFH). In addition, the mutational status of exon 4 of the GADD45 gene is determined in the AFX cases.

Major Revisions

(1) The authors have previously examined gadd45 expression in AFX (their ref #17 -- are these the very same cases?). The link between gadd45 expression and mutational status should be further developed in the manuscript. The amount of new data in this paper is minimal. I would suggest that the authors also examine p53 expression by immunohistochemistry and correlate this with gadd45 and bax expression in the AFX cases.

(2) The histopathologic and immunohistochemical criteria used to classify cases as AFX and BFH should be presented (separate from the histologic descriptions on pages 5 and 6).

(3) The authors use the phrase "significantly higher" in the Discussion section (third line) on page 6. If they wish to make such a statement a statistical quantifier (p-value) should be calculated and stated.

Minor Revisions

(4) Since there are so few cases in this series, the precise site of each should be listed on page 5 in clinical features section.

(5) In the Discussion in the first line of page 7 -- the authors state that bax expression in AFX may reflect apoptotic behavior in these tumors. Is apoptosis known to be higher in AFX than BFH?

(6) In the Introduction (page 2), the authors state that ras mutations are not seen in AFX, but are present in malignant fibrous histiocytoma (MFH). They should admit that in their previous study this was only 2 of 8 MFH and 0 of 8 AFX, very small numbers to lead to a definite statement.

(7) The authors should state their views on the relationship of AFX and MFH -- is there any or are they separate entities?

(8) There are scattered spelling and grammatical irregularities through this manuscript.
Thanks for the opportunity to review this interesting work.

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.