Reviewer's report

Title: Mitochondrial DNA Mutations in Oxyphilic and Chief Cell Parathyroid Adenomas

Version: 1 Date: 24 April 2007

Reviewer: Manuel Sobrinho Simões

Reviewer's report:

Comments to the authors
The paper of Costa-Guda et al report 393 sequence variants and 27 somatic mutations in a series of neoplastic and hyperplastic parathyroid lesions. The authors state in the Abstract that there was no clustering of sequence variants in the hyperplastic gland; this statement should be clarified (was there clustering in neoplastic glands? what were the results in the different types of lesions?). The paper would benefit from a better description of the data namely a better description of the sequence variants regarding their type and localization within the genes of the MRC and their distribution among the different types of lesions.
It is also very important to know the prevalence of the so-called large deletion of mitochondrial DNA which has been considered the hallmark of oxyphil cells in thyroid lesions, as well as in the oxyphil cells of their organs (Máximo et al Am J Pathol 160:1857-1865, 2002; Sobrinho Simões et al Int J Surg Pathol 13:29-35, 2005). Were there mtDNA deletions? If the answer is yes, were there differences between oxyphil cells and chief cell adenomas (I would expect the answer is yes).
It would also be very important to compare the somatic mutations found in the present study with those reported in other studies (Yeh et al Oncogene 19:2060-2066, 2000; Máximo et al Máximo et al Am J Pathol 160:1857-1865, 2002)
Finally, it would be important to discuss in depth the differences between oxyphil and chief cells adenomas, namely using the exiting literature on the alterations found in Hürthle cell lesions of the thyroid. I do not understand why the authors do not mention most of the papers on the molecular studies in Hürthle thyroid tumours. The comparison using the Fisher exact test (see below) appears to be too superficial. (Are as the observed differences enough to distinguish chief cells and oncocytic cells?).
The paper also needs factual corrections:
1. Abstract – Mutations in: 9 of 12 oxyphilic adenoma and 6 of 12 chief cell adenomas(?)
Methods – Cases 19 chief cell adenomas and 11 oxyphil adenomas(?)
Results – Mutations in 6 of 18 chief cell adenomas and 9 of 18 oxyphil adenomas
2. Fischer exact test “gave” a p value of 0.2 in page 8 of the Results and a p value of 0.02 in page 10 of the Discussion. Since the authors claim it was significant it is probably 0.02

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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'