

## Reviewr #1

### Summary

This was a retrospective review of 12 patients with neuroendocrine carcinomas (NECs) of the ovary, analyzing clinicopathologic features, treatment modalities and outcomes. The aim of the study was to enhance our understanding of ovarian NECs. The authors conclude that these tumors are rare, commonly involve young women and behave aggressively. Surgery is the mainstay of treatment with some benefit from adjuvant chemotherapy.

### Comments

Of the 12 cases of NECs, 9 were small cell carcinoma and 3 large cell NEC. A major problem with the paper relates to terminology, classification and definition of these ovarian tumors.

- i) The small cell carcinoma, is this the hypercalcemic type?
- ii) SMARCA4 studies are very important in the classification. I don't see this mentioned in the manuscript.
- iii) The 3 large cell NECs: were they pure large cell, or small cell carcinoma with a large cell component?
- iv) CD56 aside, the immunohistochemical characterization (Cg- A 5/10, Syn 9/11)

may not be sufficiently robust.

v) The majority of small cell carcinomas arise in the lungs. In some cases, their initial manifestation may be as ovarian metastasis. A combination of imaging and immunohistochemistry may help to clarify this.

## Conclusion

In my opinion, the above-described 12 cases should be much better characterized using clinical, morphologic and molecular parameters in order to have better understanding of their neuroendocrine nature.

Thank you.

Thank you for your comments! The following are answers to your questions(See highlights for details):

i and ii: only one of the nine patients in our paper with SCCO underwent SMARCA4 detection and was diagnosed as SCCOHT. In the future, we will pay more attention to the detection of SMARCA4 to guide the clinicopathological classification.

iii: Three cases of LCNEC were pure large cell carcinoma.

iv: loss of SMARCA4 protein expression is specific for the diagnosis of SCCOHT . However, only one of the nine patients in our paper with SCCO underwent SMARCA4 detection and was diagnosed as SCCOHT. In the future, we will pay

more attention to the detection of SMARCA4 to guide the clinicopathological classification.

V: Excluding metastatic ovarian cancer, a total of 12 patients with ovarian neuroendocrine carcinoma were identified.