Reviewer's report

Title: Retroperitoneal teratoma with somatic malignant transformation: A case of a papillary renal cell carcinoma in a testicular germ cell tumour metastasis following platinum-based chemotherapy

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Reviewer: Lambros Stamatakis

Reviewer's report:

• Major Compulsory Revisions

This report highlights a case of a male patient with metastatic non-seminomatous germ cell tumor of the testis treated with systemic chemotherapy and subsequent retroperitoneal lymphadenectomy due to a growing retroperitoneal mass. The pathology of the mass was consistent with teratoma and included a suspected area of somatic malignant transformation. Histologic features and immunohistochemistry of this area are suggestive of a focus of papillary renal cell carcinoma. The patient has otherwise no evidence of renal cell carcinoma (the left kidney was removed en bloc with the retroperitoneal mass and was free of tumor; the right kidney is normal by cross-sectional imaging). This is the first report of a papillary renal cell carcinoma arising from presumed somatic malignant differentiation of a teratoma from a testicular primary tumor (a similar report exists from an extragonadal germ cell tumor – reference 10).

While I do consider the case worthy of report, I think the manuscript requires some re-organization. I suspect that the manuscript will read easier and be clearer with narrative and grammatical restructuring by an editor who speaks native English.

I would like to see a more detailed and coherent description of the presentation and management of somatic malignant transformation. For example, does imaging play a role? The case discusses that the mass was PET positive. What is the data on PET sensitivity on metastatic non-seminomatous germ cell tumor and how did this influence your decision-making? Should PET be a part of the algorithm in following these patients (current NCCN guidelines do not recommend this modality for NSGCT).

Moreover, the described treatment and follow-up of such patients is confusing and needs clarification. My reading of the manuscript suggests that once somatic malignant transformation into a new neoplasm is identified, then traditional germ-cell tumor chemotherapy should be abandoned and the systemic treatment of the identified cancer type should ensue. While I’m sure that’s not the message the authors intended, it should be restated in a fashion that is more clear (i.e. systemic therapies specific to the identified tumor type should be considered in advanced cases with documented spread of the particular histologic subtype).
Minor Essential Revisions

Grammatical errors need to be reviewed and corrected. I don't think 6 radiographic images are necessary to address the point in Figure 1 (I personally would exclude figures 1c, 1d, and 1f). The legend in Figure 1b says "the left ureter with CONSECUTIVE hydronephrosis." This statement doesn't make sense... maybe "associated" or "concomitant".

Figure 2 also does not need 4 images. One or two to illustrate that the tumor was a teratoma would be sufficient. The power of magnification should be included in the figure legend.

Figure 3 could also be condensed to 2-3 images, including one showing a well-magnified slide of the tissue suggestive papillary RCC by H&E and then, the 2 most important IHC stains.

• Discretionary Revisions

I think a discussion on the genetic mutations associated with papillary RCC could be interesting and could help to confirm the diagnosis (i.e. does the section of papillary RCC have mutation in chromosome 7, 17, etc?).

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

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