Case Report

**PET in Rectal Carcinoma**

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Clinical History

- Seventy-four year old man with history of rectal carcinoma. Receives neoadjuvant chemo-radiotherapy (QT/RT) before surgery.
- CT examination of abdomen and pelvis showed a mass with exofitic component in left postero-lateral aspect of rectum and a small adjacent lymph node (1 cm).
Clinical History

- Chest-Rx showed increased left pleural effusion and basal atelectasis already observed a year before.
- The patient is operated the following month, being with ileostomy thereafter.
- Pathology showed rectal ulcerative lesion 7x8x3 cm corresponding to a carcinoma of tubular type with mucinous focal component, lymphatic invasion, infiltrative margin and no evidence of blood vessel invasion, with 2/3 positive lymph nodes.
- Conclusion: colon Ca - Dukes C Group C2 (Astler & Coller), Group III (Jass).
Clinical History

- A PET-FDG study is performed as part of post-surgical work-up, which showed hypermetabolic focii on the basal aspect of left lung and in right lobe of the liver, suggesting metastatic disease (Figure 1).
- Additionally, there is a finding at the infero-vesical region which could correspond to local recurrence or, more likely, to post-surgical inflammatory changes.
Figure 1.- Post-operative PET-FDG (coronal, central sagittal and 3D reconstruction). There is an active area in left lung and a second one with central hypoactivity in right hepatic lobe (red arrows).
Clinical History

- New series of chemotherapy is applied, together with surgical removal of lung and hepatic masses.
- Pathology shows metastatic tubular adenocarcinoma.
- CEA levels are normal during the following year, after which an elevation is observed.
- Re-staging workup is decided accordingly.
- A chest-Rx is normal.
- Abdominal CT: post-surgical changes in right hepatic lobe.
- A new PET study shows an area of FDG uptake in left lung which was not present in the initial study (Figure 2). Previous lesions disappeared.
Figure 2.- PET-FDG scan for re-staging. Hypermetabolic area in left hemithorax is apparent. Lesions seen on previous study have disappeared.
Clinical History

- Conventional CT of the chest only shows residual changes in left base which is not suspicious of cancer.
- Because of discrepancy with PET results, a multi-slice CT is requested, which is positive for possible neoplastic lesion involving left hilium and bronchial branches (Figure 3).
Figure 3.- Multi-slice CT showing hilair mass with bronchial involvement.
Discussion

- Because of the imaging presentation, diagnostic dilemma is to differentiate between primary bronchogenic carcinoma (for which surgery would eventually be indicated) and metastasis from rectal carcinoma.
- Since there were no other findings in the PET study that could explain CEA elevation, the finding was interpreted as metastatic and chemo-radiotherapy was performed (unfortunately, no biopsy of the pulmonary lesion was carried out).
- Follow-up information is lacking but the patient died 3 years later.
Conclusion
Teaching points

- PET-FDG can be used for initial staging and re-staging in rectal carcinoma.
- PET-FDG can help clarify the origin of new CT findings.
Bibliography


