616 Rare KIT gene mutation in a recurrent GIST: Case Report

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Introduction: The diagnosis and treatment of Gastro-intestinal stromal tumours (GISTs) has been revolutionized by molecular pathology and targeted therapy.
Description: This patient was diagnosed with locally advanced gastric GIST in 2009. He was initially treated neoadjuvantly with imatinib from 2009- 2010. He underwent laparoscopic resection in 2010. Pathology showed almost complete response with only 1.5mm focus of viable tumour. He did not receive adjuvant imatinib as this was not established practice in 2010. Recurrent disease was resected in 2011. Mitotic count was 200/50hpf. Adjuvant imatinib was given for 5 years then discontinued in 2016. Imaging showed no recurrence over this time period. Molecular testing showed Kit Exon 11 mutation- this is common in GISTs and associated with response to imatinib. Recurrent disease was diagnosed 2018 with a 10x9cm mass between residual stomach and liver– he recommenced imatinib with partial response (maximal response was reached in 2020, but a new 3cm lesion was noted) He underwent further resection of the residual stomach and liver segmentectomy in 2020. Histology showed acellular areas of myxoid degeneration, indicating treatment response however viable tumour remained. Sequencing was performed. This showed the expected mutation in exon 11 but also a mutation in exon 13 of KIT- this has been shown recently to confer resistance to imatinib.
Discussion: Over 90% of GISTs harbour mutations in c-KIT. Recent work has demonstrated that some tumours acquire secondary mutations conferring resistance, following prolonged TKI therapy. Radiological and histopathological features correlate with such events and assist in deciding surgical management.