Conclusions
• Gastric GISTs with KIT exon 11 deletions involving codons 557 and 558 are at increased risk of tumor rupture.
• Mutation analysis should be included in the assessment when neoadjuvant imatinib treatment is considered.

Background
• The Oslo Sarcoma Group has proposed a definition of tumor rupture in GIST (Fig. 1).
• Using this definition tumor rupture is a strong predictor of poor outcome (Fig. 2).
• Identifying patients at risk of tumor rupture could improve treatment and outcome.

Results
• Tumor rupture occurred in 37 of 209 patients (18 %).
• Rupture was most frequent in tumors with KIT exon 11 deletions (Fig. 3).
• Tumors with a deletion involving codons 557 and 558 (del557/558) had the highest risk of rupture (Fig. 4).
• The association was confined to gastric tumors: 35 % with del557/558 ruptured compared to 8 % with other exon 11 deletions (Fig. 4).
• Multivariable logistic regression analysis:
  Tumor diameter: OR 1.49; P<0.001
  del557/558: OR 5.29; P=0.042
• Six patients with gastric tumors and del557/558 mutation received neoadjuvant treatment and rupture occurred only in one.

Implications and future directions
• Neoadjuvant imatinib should be considered in all patients with large tumors and del557/558 mutation
• Validation of the findings in a separate patient cohort is ongoing