Case presentation
Vaia Florou, MD
Hematology/Oncology Fellow
32 year old woman with no medical problems

She was 21 weeks pregnant when she presented to a community hospital with left sided abdominal pain and cough for about one month

Symptoms started when she was 16 weeks pregnant

Initial ultrasound showed a suspicious mass at the stomach

Florou et al, AJHO, 2017
CT of the abdomen and pelvis: 21.4 x 11.1 x 16.3 cm gastric mass invading the spleen as well as multiple liver lesions

Florou et al, AJHO, 2017
• Due to worsening symptoms she underwent an exploratory laparotomy with partial gastrectomy and splenectomy with resection of the tumor

• During surgery there was tumor capsule rupture and it was a piecemeal resection

• She also had biopsy of the liver lesions
Case Presentation

- Pathology
  - Gastric mass (24cm)
    - **Gastrointestinal stromal tumor**, 37 mitoses/50 HPF
    - 30% necrosis, 70% viable
    - Mutational status- KIT exon 11 mutation
  - Liver biopsy
    - **Gastrointestinal stromal tumor**
• Due to surgical complications she was transferred to our center for further management of her condition

• We checked circulating tumor DNA at the time and we detected the presence of the same KIT exon 11 mutation, W557-K558 deletion
Circulating tumor DNA before treatment

KIT exon 11 mutation W557_K558del was detected in 6.3% of total circulating DNA

Florou et al, AJHO, 2017
Due to high tumor proliferation rate in tumors with KIT exon 11 mutation, codon **W557- K558** deletion we initiated Imatinib during her 26\textsuperscript{th} week of gestation

We initiated Gleevec at 100mg daily escalated every four days to 400mg daily

Required one day off Imatinib for increased liver enzymes one week into the 400mg dose

Good tolerance overall
Case Presentation

- At 29 weeks of gestation she experienced premature labor and Imatinib was held for planned C-section
- Uncomplicated c-section at 30 weeks of gestation
- Imatinib was restarted 6 days post partum
- Preterm baby boy discharged from the neonatal intensive care unit in stable health two months later
- Ongoing response to Imatinib one year later
Response of the liver lesions over time

Immediately after the C-section

Two months later

Three months later

Six months later

Nine months later

Twelve months later

Florou et al, AJHO, 2017
Circulating tumor DNA three months after therapy

Decrease of c-KIT Exon 11 mutation from 6.3% of Total Circulating Tumor DNA to nondetectable three months after starting Imatinib

Florou et al, AJHO, 2017
Cases of GIST in pregnancy have only been scarcely reported.

Surgical excision if feasible during pregnancy and TKIs postpartum is the most described approach in published cases.

However, insufficient evidence to conclude that Imatinib can cause fatal developmental effects especially if exposure occurs after the first trimester.
Conclusions

- Different KIT mutations have different risk potentials
- Initiation of TKI therapy in pregnancy should be individualized
- Women who want to become pregnant should have a discussion with their oncologist first about all the potential risks and possible options
- Circulating tumor DNA may become a surrogate marker of response in the future, especially in situations like pregnancy when exposure to radiation from CT and PET should be limited

Florou et al, J Clin Oncol, 2018
Thank you