Exercise-induced abdominal pain in a high-level athlete

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PATIENT

• 17year old
• Male
• Elite, high school cross-country runner
• No PMHx aside from a broken collar bone as a young child
CHIEF COMPLAINT

- Recurrent right-sided abdominal pain during races
  - Sharp, non-radiating during 2 mile mark of race
  - Causes him to slow his pace
  - Lingers afterwards for 2 days
  - Only appears at race pace (~5min mile) not during practice

ROS negative.
Denies itching, rash, cough, bruising, swelling, trauma, hx of Asthma, changes in bowel, changes in appetite, or hydration
PHYSICAL EXAM

- General: normal
- Heart: normal
- Lungs: normal
- Abdominal: normal
- Neuro: Normal
- Skin: normal
- Psych: normal

Msk:
- No redness, deformity, or swelling on observation of abdomen.
- Full active and passive ROM in the lumbar spine, hip, and shoulder.
- Discomfort during lateral flexion to left and right but no pain.
DIFFERENTIAL DIAGNOSIS

- Exercise-Associated Rectus Abdominis Strain
- Exercise-related transient abdominal pain (Side Stich)
- Exercise-Induced Asthma
- Somatic Symptom Related Running Disorder
- Lower rib contusion
MEDICAL WORKUP

- Routine blood work = normal
- Spirometry & CXR = normal
- RUQ Ultrasound = normal
- Vascular imaging = normal.
RUQ MSK US in sports office: mild discomfort during palpation of the rectus abdominis muscle, at the same location but of lesser-intensity, as his pain at race pace.
DIAGNOSIS

• Right upper quadrant rectus abdominis muscle strain!
  – most likely given the patient’s age, health status, and running mechanics
  – Lab results, imaging normal
  – Muscle strains occur mostly in larger joints, can occur along tendons
  – May only be apparent in high-level athletes exercising at peak level

(pt only felt pain running at top speed (sub-5:30 mile)
TREATMENT AND CLINICAL COURSE

• Pt advised to do:
  – heavy load strengthening of his rectus abdominis and obliques
  – manual treatments alongside a physical therapist comfortable working with high-level athletes
• Pt reassured:
  – strengthening the rectus abdominis muscle should decrease running discomfort overtime
• We recommended:
  – re-examine his running mechanics to prevent additional injuries in the future
WHAT HAPPENED AFTER THE DIAGNOSIS

• Action Steps:
  – worked with a running coach to improve his form
  – went to physical therapy
  – completed a home-strengthening program

• A few weeks later:
  – Ran his fastest time ever in the last meet of the season with minimal plan
  – Plans to graduate high school and continue running in college
  – He will return to us as needed
LESSONS LEARNED

1-Keep muscle strains on the differential to avoid unnecessary tests and delay in treatment

2-Not all muscle strains are diagnosed via physical exam or provocative tests in clinic.

3-Being skilled in diagnostic musculoskeletal ultrasound has benefits beyond injections and procedures

4-Physicians should feel comfortable advising high level athletes on management of exercise with muscle strains