Exercise Related Transient Abdominal Pain (ETAP)

Background
1. Definition
   o Well-localized pain related to exercise
   o May occur in any region of abdomen
     ▪ Most prevalent in lateral aspects of mid abdomen
   o Pain described as sharp or stabbing when severe, cramping, pulling or aching when less intense
   o Abdominal pain may be associated with shoulder tip pain (STP)
2. General info
   o Exercise related transient abdominal pain (ETAP) is a common complaint in activities that involve considerable torso movement such as running and swimming
     ▪ Exact mechanism of pain is unknown-many theories exist
       ▪ Runner's Web: Exercise Related Transient Abdominal Pain - "Runner's Stitch"

Pathophysiology
1. Pathology
   o Exact etiology unknown-several theories exist
     ▪ Association between STP and ETAP suggest diaphragmatic involvement
       ▪ Ischemia of diaphragm
   o Other theories include
     ▪ Stress on visceral ligaments
     ▪ Muscular cramps
     ▪ Irritation of parietal peritoneum arising from friction between parietal and visceral folds
2. Incidence/prevalence
   o Number of athletes experiencing ETAP during one yr of training
     ▪ Running 69%
     ▪ Swimming 75%
     ▪ Horse riding 62%
     ▪ Aerobics 52%
     ▪ Basketball 47%
     ▪ Cycling 32%
     ▪ Combined total of all athletes 61%
3. Risk factors
   o Eating or drinking before exercise
     ▪ Beverages w/high carbohydrate content or osmolarity
   o Consuming fatty foods/dairy products prior to sporting event
   o Consuming large mass of food relative to body weight 1-2 hrs prior to event
   o High exercise intensity
   o Cold conditions
   o Lack of warm up
4. ETAP has been associated with:
   ▪ Younger age
   ▪ Individuals with incr kyphosis
Not associated with gender, BMI or training status.

5. Morbidity/mortality
   - No mortality associated with ETAP
   - May adversely affect athletic performance

**Diagnostics**
1. Diagnosis based primarily on hx
   - Transient abdominal pain during exercise-relieved with cessation of activity
   - Pain described as well localized, commonly in lumbar region of abdomen
     - Usually on right side
2. Physical exam
   - Normal abdominal exam
   - Abnormal abdominal exam suggests different etiology of pain during exercise
3. Diagnostic testing
   - None recommended unless physical exam or hx suggests etiology other than ETAP

**Differential Diagnosis**
1. Muscle cramps
2. Median arcuate ligament syndrome
3. GERD
4. Peptic ulcer disease
5. Costochondritis
6. Mesenteric ischemia
7. Cholecystitis
8. Pleurisy
9. Gastritis

**Therapeutics**
1. Acute treatment
   - Relief of pain reported with:
     - Stretching affected side
     - Bending forward
     - Deep breathing
   - Pushing on affected side
2. Further management
   - Avoid drinking hypertonic beverages prior to exercise
   - Refrain from ingestion of food or large volumes of liquid 2 hrs prior to sporting event
   - Proper warm up prior to exercise
   - Anecdotal reports that slow deep breathing may help to relieve ETAP-no literature to support this

**Follow-Up**
1. Return to office
   - Not recommended unless physical exam or hx suggestive of etiology other than ETAP
2. Long-term care
   o Preventive measures

Prognosis
1. Not well documented
2. Decreased frequency with improved training status and age
   o Most likely 2° to acknowledgment and avoidance of precipitating factors

References

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