

# **Exercise Related Transient Abdominal Pain (ETAP)**

## **Background**

### 1. Definition

- Well-localized pain related to exercise
- May occur in any region of abdomen
  - Most prevalent in lateral aspects of mid abdomen
- Pain described as sharp or stabbing when severe, cramping, pulling or aching when less intense<sup>2</sup>
- Abdominal pain may be associated with shoulder tip pain (STP)<sup>2</sup>

### 2. General info

- Exercise related transient abdominal pain (ETAP) is a common complaint in activities that involve considerable torso movement such as running and swimming<sup>3</sup>
  - Exact mechanism of pain is unknown-many theories exist
  - Runner's Web: Exercise Related Transient Abdominal Pain - "Runner's Stitch"

## **Pathophysiology**

### 1. Pathology

- Exact etiology unknown-several theories exist
  - Association between STP and ETAP suggest diaphragmatic involvement
    - Ischemia of diaphragm<sup>3</sup>
- Other theories include<sup>3</sup>
  - Stress on visceral ligaments
  - Muscular cramps
  - Irritation of parietal peritoneum arising from friction between parietal and visceral folds

### 2. Incidence/prevalence

- 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%<sup>3</sup>

### 3. Risk factors

- Eating or drinking before exercise
  - Beverages w/high carbohydrate content or osmolality<sup>4,5</sup>
- Consuming fatty foods/dairy products prior to sporting event
- Consuming large mass of food relative to body weight 1-2 hrs prior to event<sup>4</sup>
- High exercise intensity
- Cold conditions
- Lack of warm up

### 4. ETAP has been associated with:

- Younger age
- Individuals with incr kyphosis

- Not associated with gender, BMI or training status<sup>2</sup>
- 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 w/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<sup>6</sup>
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:<sup>3</sup>
    - Stretching affected side
    - Bending forward
    - Deep breathing
  - Pushing on affected side
2. Further management
  - Avoid drinking hypertonic beverages prior to exercise<sup>4,5</sup>
  - 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
  - Preventive measures

### **Prognosis**

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

### **References**

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