24 year-old male presents with shortness of breath. No trauma.

Ryan P. Joyce, MD
Primary spontaneous tension pneumothorax
Primary spontaneous tension pneumothorax

Pneumothorax without precipitating event in an otherwise healthy patient.

• Pneumothorax evidenced by a visible pleural line and lack of peripheral lung markings. Be aware of deep sulcus sign as well.
• Tension evidenced by mediastinal shift and tracheal deviation contralateral to pneumothorax, and ipsilateral diaphragmatic flattening and rib splaying.
• Small: <20% of hemithorax volume. Large: >20% hemithorax volume.
• Increased incidence in Marfan, Ehlers-Danlos, Birt-Hogg-Dube, and Cutis Laxa.
• Upright radiography usually diagnostic. Sometimes decubitus to help confirm. CT more sensitive.
• Patients present with chest pain and dyspnea.
• Usually affects young men (20-40 years), tall, thin patients.
• Treatment: Oxygen, chest tube, resection of bullae/blebs.
• Patients with PSP should avoid air travel for 6 weeks & scuba diving for life.
Primary spontaneous tension pneumothorax

Pneumothorax differential:

- PSP
- Iatrogenic
- Traumatic
- Secondary spontaneous pneumothorax (infection, malignancy, cystic lung disease, catamenial pneumothorax, asthma, bronchiolitis, cystic fibrosis, cavitary lesion).
- Mimics: skin folds, life support devices, pneumomediastinum.
Pleural margin
Ipsilateral rib splaying
Ipsilateral diaphragmatic flattening
Tracheal deviation and mediastinal shift to the right
Pleural margin
Pleural margin

Chest tube

Improved mediastinal shift