

IMAGES IN CLINICAL PRACTICE

PIGGYBACK CAN BE HARMFUL?

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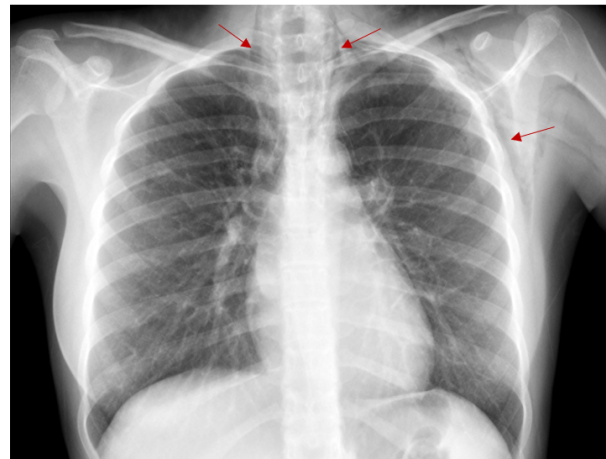
A 14-year-old girl, with a previous history of controlled asthma without any chronic medication, was admitted to the emergency department with dyspnea, neck and chest pain. Without history of trauma, she only mentioned that a friend jumped on her back a few hours earlier. The primary examination revealed a blood pressure of 109/68 mmHg (50th percentile), heart rate of 89 beats/min and oxygen saturation of 97%, with palpable crepitus in the anterior chest wall and neck and diminished breath sounds in pulmonary auscultation. The rest of the physical examination was unremarkable. Electrocardiography shown normal sinus rhythm without QTc prolongation or axis deviation. Chest X-ray is shown on Figure 1.

What is the diagnosis?

The patient was diagnosed with spontaneous pneumomediastinum (SPM) and bilateral subcutaneous emphysema, conditions rarely observed in pediatric patients.

An abrupt increase in intra-alveolar pressure can lead to alveolar rupture, causing air leak and resulting in interstitial emphysema. Subsequently, air may reach the hilum, leading to pneumomediastinum or pneumothorax. If the released air spreads into the subcutaneous tissues of the chest wall and neck, subcutaneous emphysema occurs.¹ Several pathological and physiological events can contribute to alveolar rupture, such as lower respiratory tract infections, poorly controlled asthma, or activities that trigger a Valsalva maneuver, like forceful straining.² In the presented case, asthma seemed to be well-controlled, so the cause appears to be the stretching the girl experienced when carrying her friend piggyback. The majority of SPM cases are benign and self-limited, typically managed conservatively.³ The patient received noninvasive monitoring and supportive treatment, including high-flow nasal cannula oxygen therapy, analgesics and intravenous fluids, leading to complete recovery and discharge after 24 hours. We highlight that, although a rare cause of SPM,

Figure 1. Chest X-ray revealing pneumomediastinum and bilateral subcutaneous emphysema, over the neck and left side of chest wall (red arrows).



physicians should consider this diagnosis in patients presenting with chest pain in the absence of trauma or pulmonary disease.

Compliance with ethical standards

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References:

1. Tortajada-Girbés M, Moreno-Prat M, Ainsa-Laguna D, Mas S. Spontaneous pneumomediastinum and subcutaneous emphysema as a complication of asthma in children: case report and literature review. *Ther Adv Respir Dis*. 2016 Oct;10(5):402-9.
2. Tsay CY, Chen YL, Chen CS, Lin PC, Wu MY. Pediatric Spontaneous Pneumomediastinum after a Push-Up Exercise: An Uncommon Complication of a Common Exercise. *Children (Basel)*. 2020 Dec 11;7(12):287.
3. Noorbakhsh KA, Williams AE, Langham JJW, Wu L, Krafty RT, Furtado AD, Zuckerbraun NS, Manole MD. Management and Outcomes of Spontaneous Pneumomediastinum in Children. *Pediatr Emerg Care*. 2021 Dec 1;37(12):e1051-e1056.

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