

EDITORIAL

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Lung Hernia – a Review

Przepuklina płuca – przegląd

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Abstract

Lung hernia is a protrusion of lung tissue through one of its bounding structures. This uncommon condition develops most commonly as a result of trauma or after thoracic operations. Other lung hernias, particularly supraclavicular, are congenital. Diagnosis is usually clinical, but must be confirmed by roentgenography or computed tomography. Presence of incarceration or other symptoms makes operation obligatory. Incarcerated tissue should be released promptly, but may have to be resected. For closure of a hernia defect the use of autologous tissues is recommended. When these are not available, synthetic materials are acceptable. Some hernias are asymptomatic and no treatment is necessary (*Adv Clin Exp Med* 2013, 22, 5, 611–613).

Key words: lung hernia, lung incarceration, thoracoscopy, chest wall defect.

Streszczenie

Przepuklina płuca to przesunięcie się tkanki płucnej poza ścianę klatki piersiowej. Nieczęste to uformowanie rozwija się zwykle w wyniku poprzedniej operacji klatki piersiowej lub urazu. Inne przepukliny płuca, zwłaszcza nadobojczykowe, są wrodzone. Rozpoznanie jest zazwyczaj kliniczne, choć musi zostać potwierdzone rentgenograficznie lub komputerowo. W obecności uwięźnienia tkanki płucnej i innych symptomów operacja jest konieczna. Uwięźnioną tkankę należy zwolnić, choć może też zajść potrzeba wycięcia. Do zamknięcia otworu przepukliny poleca się użycie tkanek autologicznych, a gdy nie jest to możliwe – materiałów syntetycznych. Niektóre przepukliny są bezobjawowe i ich leczenie nie jest konieczne (*Adv Clin Exp Med* 2013, 22, 5, 611–613).

Słowa kluczowe: przepuklina płuca, uwięźnienie płuca, torakoskopia, brak ściany klatki piersiowej.

Lung hernia is an uncommon condition. Defined as the protrusion of lung tissue through one of its bounding structures, it was first described by Roland (cited in [1]). In the majority of reported patients the lung herniated through the intercostal space either as a result of trauma or after thoracic operations. Most other lung hernias were congenital. Among these there was one instance of a bilateral cervical hernia with T1 nerve compression [2]. “Spontaneous” lung hernias have been reported following coughing episodes, but often are at sites of previous surgery [3].

Lung hernias were first classified by Morel-Lavallee in 1845 on the basis of etiology and anatomy [4]. This classification still holds today. Two etiologic groups are recognized: congenital and acquired, the latter further divided into traumatic, spontaneous, and those caused by local pathologic

conditions, such as tumor, abscess in the chest wall or tuberculosis.

Congenital hernias are caused by attenuation of the endothoracic fascia. They occur either at the thoracic inlet or at the intercostal space, where weakness of the fascia is usually combined with absence of intercostal muscles. Some congenital hernias may not have been noticed in earlier life and presented initially in adults [5].

Acquired hernias result usually from trauma to the chest, either penetrating or blunt, or from a preceding operation with inadequate closure of the chest wall [6–8]. In one recent instance the hernia occurred two days after traumatic cardiopulmonary resuscitation with multiple rib fractures and was related to the formation of a large hemothorax [3]. Another unusual postoperative lung hernia was described following an Ivor Lewis esophagectomy. In

this instance the lung tissue was found to be incarcerated between the ribs and required wedge resection [9]. Postoperative intercostal hernias are reported more commonly after less extensive surgical procedures, such as video-assisted thoracoscopy, than after major thoracic interventions [7, 8, 10]. It may be due to a less meticulous closure of the smaller incisions, as opposed to routine thoracotomy closure. This is well exemplified by two reports of a lung hernia following “minimally” invasive mitral heart surgery, with closure apparently less than adequate [11, 12]. Therefore, the importance of meticulous closure of the “minithoracotomy” and “video” incisions cannot be overstressed.

Anatomic classification divides the hernia into thoracic and cervical.

Lung hernia presents usually as a soft, tender, subcutaneous mass that enlarges on physical strain or coughing. In the absence of a palpable mass, Valsalva maneuver should cause the mass to enlarge and become palpable or visible. Traumatic hernias may appear immediately following injury, but may be delayed, sometimes for years [6]. The patient may remember a recent or a remote trauma to the chest wall. The initial clinical diagnosis must be confirmed by chest roentgenography and by computed tomographic scans [5, 8, 10, 13].

For closure of the defect, Munnell recommended the use of autologous tissue whenever possible, sometimes combined with biological glue [2, 14]. Synthetic materials such as Dacron, Ivalon, Teflon, GoreTex or Marlex are considered acceptable, when local tissues are not available [12]. In order to reduce pain after thoracotomy, some authors used intracostal sutures [15]. Thoracoscopic repair of cervical lung hernia has also been reported [16].

Management of a pulmonary hernia depends on symptoms, location and size. Asymptomatic hernias, particularly those in the supraclavicular location, require no treatment. These hernias do not usually change and remain asymptomatic [5]. However, even in this location, hernia may cause a nerve T1 compression with cervical neuralgia. It has occurred bilaterally and was repaired using bovine pericardium and biological glue [2]. Increasing size, pain, and any signs of impending incarceration, such as difficulty to reduce the hernia, constitute indications for operation. A small defect increases the risk of incarceration and makes reduction more difficult. In these instances an operation with release of incarceration should be done promptly [9]. Repair for cosmetic reason is sometimes justified.

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