

Primary spontaneous hemopneumothorax: A rare presentation

Fahmi Kakamad, Mustafa Kadhim, Fitoon Korja, Rawand Essa, Suren Hama Baqi

ABSTRACT

Introduction: Primary spontaneous hemopneumothorax (PSHT) is a condition in which blood and air collects in the pleural space without any obvious cause. It may present with hypovolemic shock. We present a case of recurrent PSHT with brief literature review. **Case Report:** A 22-year-old male presented with left side chest pain, looking ill, fatigue and pale with absent air entry on the left side. Chest X-ray showed left hydropneumothorax. Tube thoracostomy inserted, 150 cc of blood drained with air. Within the next hour, another 1350 cc blood drained. Subsequent erect chest x-ray showed expanded lung with clearance of both costodiaphragmatic angle. After one week from discharge, patient presented with the same complaint, he was managed surgically, and discharged. After one month, the patient presented with contralateral Primary spontaneous pneumothorax (PSP) treated conservatively. **Conclusion:** Primary spontaneous hemopneumothorax is a surgical emergency, recurrence although very rare, can still occur.

Keywords: Aortic dissection, End stage renal disease (ESRD), Maintenance hemodialysis

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INTRODUCTION

Primary spontaneous hemopneumothorax (PSHT) is a condition in which blood and air accumulate in the pleural space without history of trauma or any obvious cause [1]. The amount of blood used to define PSHT is controversial. Some studies regarded 400 cc as a minimal amount of blood to be present for a case of PSHT [2, 3].

La-ennec in 1828 was credited with 1st description of PSHT, which was diagnosed at post-mortem. Subsequently, successful treatment of PSHT by thoracocentesis was performed by Whitaker in 1872 [4].

It is a rare condition occurring in about 0.5–12% of spontaneous pneumothorax [5].

PSHT is different from spontaneous pneumothorax in which the patient may present with hypovolemic shock which needs urgent intervention [5]. The treatment goals include resuscitation, hemostasis and lung expansion [6].

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The condition is treated initially by tube thoracostomy, however, surgical intervention is required in cases of hypovolemic shock or continuous bleeding [7].

The optimal management of SHP remains controversial. There are no definitive guidelines on patient selection for surgery and timing of intervention.

The conservative treatment indicated by some authors if bleeding persisted less than 24 hours provided that the patients is stable [8].

To our knowledge, recurrence of PSHT has never been reported in literature. The current paper presents a rare case of PSHT with recurrence.

CASE REPORT

A 22-year-old male, non-smoker, referred to emergency department for having sudden onset left side chest pain, radiated to the shoulder associated with cough, pallor and generalized body weakness for one day duration. He had history of weight loss and anorexia for one month duration. The patient was tall, thin, looking ill and pale. He was dyspneic, but nearly absent air entry on the left side.

Vitals: blood pressure 110/70 mmHg, pulse rate 110/minute, chest X-ray showed hydro pneumothorax in the left side (Figure 1). Left side tube thoracostomy inserted, 150 cc of blood drained with air. Within the next hour when the patient started physiotherapy, another 1350 cc blood drained. Resuscitation was done by blood (one unit) and fluid and the patient responded. Blood investigations were ordered which showed INR of 1.8 upon which two units of plasma has been given. The patient has been closely monitored, over the next 10 hours, only 200 cc blood drained.

Liver function tests, abdominal ultrasound and alpha one antitrypsin were all within the normal limits. Flexible bronchoscopy was done which was normal. Subsequent erect chest X-ray showed expanded lung with clearance of both costodiaphragmatic angle. The chest drain was clamped and removed the day after (Figure 2). The patient was sent home an sixth day. After one week, the patient presented with the same complaint (Figure 3), tube thoracostomy re-inserted, which drained 500 cc bloods. Computed tomography scan of the chest with IV contrast showed retained left side hemothorax with collapse consolidation of the left lower lobe, no bullae was found (Figure 4).

Thoracotomy done, clot evacuated, no source of bleeding was found. The patient was sent home three days later. After one month patient re-admitted with contralateral primary spontaneous pneumothorax (Figure 5) managed by posterolateral thoracotomy.

DISCUSSION

Primary spontaneous hemopneumothorax (PSHT) is a surgical emergency for which neither definition nor



Figure 1: Left side hydro-pneumothorax.



Figure 2: Chest X-ray after 24 hours drain clamp showing expanded lung with clear costophrenic angle.

guideline for management has not been established well [5].

PSHT is different from PSP in dramatic deterioration of the patient due to continuous blood loss in spite of that both conditions present with nearly same clinical features and diagnosed by the same diagnostic tools.

The symptoms of chest pain, dyspnea and cough may be combined by signs and symptoms of hypovolemic shock and lethargy [6]. The amplitude of symptoms is affected by degree of blood loss rather than magnitude of lung collapse. The amount of blood that considered enough to diagnosis SHP is 400 cc and 1000 cc as massive one. Chest X-ray is the routine diagnostic tool for diagnosis although 10% of chest X-ray shows only pneumothorax initially [6, 9].

The usual causes of bleeding in case of PSHT which were seen intraoperatively are:

- (i) Torn of adhesions between the two layers of pleura.
- (ii) Rupture of aberrant congenital vessels that usually not contract due to lack of muscular layer.



Figure 5: Chest X-ray showing contralateral pneumothorax.

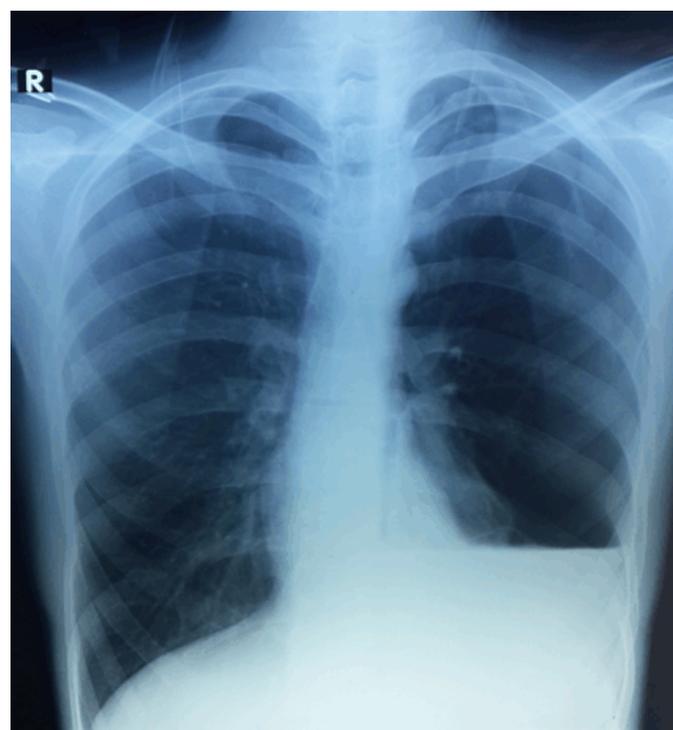


Figure 3: Re-appearance of hydropneumothorax.

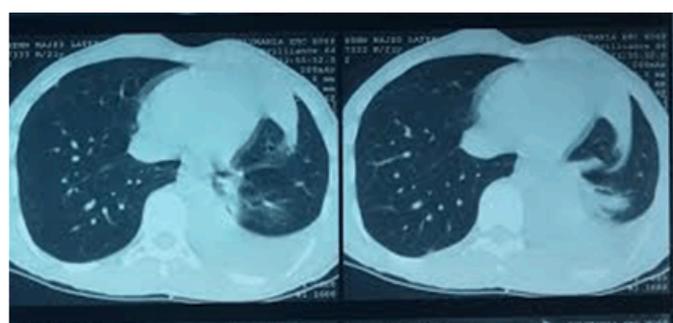


Figure 4: Computed tomography scan of the chest showing residual hemothorax on the left side.

- (iii) Rupture of vascularized bullae [5, 6, 9].

The management of SHP includes resuscitation and volume replacement, initial drainage with tube thoracostomy and then intervention whether open or thoracoscopic method whenever indicated [7]. Blood transfusion is indicated in patient with clinical features of hypovolemia and shock [1]. The initial goals of treatment are hemostasis, lung re-expansion and drainage. Conservative treatment were used by some authors in patients whose bleeding lasted less than 24 hours, but restrictive types of lung pathology were seen during follow up which required surgery later on in some patients [1, 6, 7].

The indications for surgical intervention in literature included shock state, initial drainage of 1000 cc, continuous drainage of 200 ml for two successive hours, and inadequate lung expansion in spite of proper drainage system and massive hematoma noticed on CT scan [1, 6] (Table 1).

Video assisted thoracic surgery has acquired more acceptances since it provides less tissue damage with less postoperative pain with shorter mean of hospital stay. The indication of VATS is not different from that used for open technique. The intervention will provide direct control of bleeding point, sealing the air leak, evacuation of the retained hematoma, resection of bullae with pneumorrhaphy and effective drainage of pleural space [1, 2, 6, 7, 9].

Table 1: Literature review of prominent articles addressing PSHT (age, presentation main lines of management)

Study	%	Mean age (Years)	Gender		Shock	Conservative Management	Operation	Drainage (ml)
			M	F				
Kim et al. [5]	1.7	19.5	17	-	6	5	12	1308
Tulay et al. [11]	4.07	43	9	-	3	2	7	1416.6
Homma et al [12]	4.6	26.7	9	2	3	1	10	463
Tay et al. [1]	6.4	24	31	2	5		33	1280
Tatebe et al. [2]	2.3	29.9	10	-	3	1	9	1242
Wu et al. [8]	6.6	25.3	24	-	11		24	1126.5
Hacıbrahimoglu et al. [3]	3.09	41.8	9	-	6	7	2	1533.3

We present a case of recurrence PSHT in which in first attack the patient was treated conservatively. According to our knowledge, no recurrence of PSHT has been documented regardless of which surgical method had been used. This may be explained by the fact that blood acts as a biological agent for pleurodesis which induces dense adhesion and prevents recurrence [1, 3, 5–8, 10–12].

CONCLUSION

Primary spontaneous hemopneumothorax (PSHT) is a surgical emergency, recurrence although very rare can occur early in follow-up, especially when the patient treated conservatively.

Author Contributions

Fahmi Kakamad – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Mustafa Kadhim – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Fitoon Korja – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Rawand Essa – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Suren Hama Baqi – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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