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Unveiling Different Ways for Management of Delayed Traumatic Hemothorax

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Abstract

Background: Delayed traumatic hemothorax is a uncommon sequence of blunt thoracic trauma. It occurs in 12% of blunt thoracic trauma. It is commonly associated with rib fracture. Early detection of delayed hemothorax is important to prevent complication as empyema and fibrosis. There are different modalities used in management: Intercostal drain, pigtail catheter, video-assisted thoracoscopic surgery and exploratory thoracotomy.

Aim of Study: The aim of this study was to evaluate the different ways of management of delayed traumatic hemothorax and their outcome.

Patients and Methods: This prospective study was conducted at our tertiary center hospital over one year period (June 2023 – May 2024), for patients diagnosed with delayed traumatic hemothorax. Collected data included: Age, mode of trauma, relapsed time between trauma and detection of hemothorax, associated thoracic trauma and different ways of management.

Results: A Total of 20 patients were included, with mean age of 37.05±17.05 years. Thirteen patients had RTA, four patients after FFH and three patients after falling down.Relapsed time between trauma and detection of hemothorax was 5.15±6.55 days. Eleven of them had rib fractures, five patients had lung contusion, and four patients had rib fracture and lung contusion. Sixteen patients were successfully managed by intercostal drainage (ICD), one was managed initially by ICD then by thoracotomy, one patient was initially managed by ICD then finally managed by video-assisted thoracoscopic surgery (VATS), another one was successfully managed by pigtail and 1 case was explores at first by VATS then converted to open thoracotomy.

Conclusion: Patients with blunt thoracic trauma should be followed-up clinically andby chest X-ray during a period between 1-30 days after trauma especially in old-aged patients and in victims of rib fractures. The earlier the intervention, the better results are obtained, and fewer complications occur. Video-assisted thoracoscopic surgery (VATS) is considered one of the best modalities in managing delayed traumatic hemothorax.

Key Words: *Delayed traumatic hemothorax – Hemothorax – Intercostal drain – Pigtail catheter – VATS – Rib fractures and lung contusion.*

Introduction

HEMOTHORAX is an accumulation of blood in the pleural space and characterized by a pleural fluid haematocrit more than 50% of the patient's peripheral blood haematocrit. Hemothorax is mostly due to thoracic trauma **[1]**. Delayed hemothorax is a rare sequence of blunt chest trauma. It occurs in 12% of blunt thoracic trauma. It means hemothorax that appears 24 hours after trauma without being recognized in initial examinations. This definition was characterized by Shorr et al. **[2,3]**. But Ritter et al. **[4]** Redefined it as hemothorax identified in further tests after two hours of the initial assessment **[5,6]**.

Risk factors of delayed traumatic hemothorax were found to be rib fractures especially with old age, and lung contusion **[7]**.

Initial detection of hemothorax could be achieved by chest X-ray and chest computed tomography **[2]**.

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Extended Focused Assessment with Sonography in Trauma (eFast) is a bedside test that allows additional views to exclude hemothorax. The initial treatment of choice for hemothorax is intercostal tube drainage (ICD) depending on the amount of blood on pleural cavity. Complications like empyema and fibrothorax may appear if delayed hemothorax is not detected and treated promptly [8].

32 Fr ICD or greater is preferred to decrease the incidence of tube block by blood clot. Clottingof blood in the tube may be an indication of ongoing bleeding. Recent studies state that small-pore and large-pores tubes are equally effective in treatment of hemothorax. So, pigtail is considered effective [9-12].

Pigtail has an advantage of being easy and simple. It is also less traumatic and requires small incision to be inserted and is less painful than intercostal drain. It also has less ambulatory restriction that may be encountered in intercostal drain so it is more accepted by patients [13].

Another modality of treatment is Video-assisted thoracoscopic surgery (VATS) which is minimally invasive procedure. It has an advantage of decreased postoperative pain, quick recovery and short hospital stay compared to conventional open thoracotomy [14].

Best timing for performing VATS is defined as within 72 hours. That is associated with high success rate and reduction of hospital stay. Consequently, once significant amount of retained hemothorax and immediate drainage is considered, VATS is a good option [13].

In case of hemodynamic instability due to ongoing bleeding or failed VATS to control bleeding or evacuation of clotted hemothorax, the procedure of choice is thoracotomy exploration. This allows better control of bleeding, evacuation of clotted blood and decortication if needed [6].

Patients and Methods

This prospective study was conducted at Alexandria Main University Hospital over one year period (June 2023 – May 2024). Twenty patients were included. The study protocol was approved by the Faculty of Medicine, Alexandria University Ethics Committee (serial no: 0107886). The study was conducted in accordance with the principles of the Declaration of Helsinki. Demographic data (age and sex), full history taking including time and mode of trauma, and relapsed time between trauma and detection of hemothorax were recorded. Physical examination was done. Radiological diagnosis was done using a single or combination of imaging modalities, including chest X-ray, computed tomography. Management of delayed hemothorax depended on several factors including: Amount of hemothorax, vital stability of the patients, associated thoracic injuries and co-morbidities. Data was fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp, released 2011). Qualitative data were described using number and percentage. Quantitative data were described using range (minimum and maximum), mean, standard deviation, median and interquartile range (IQR).

Ways of management:

Pigtail catheter:

After localization of the collection inside the pleural cavity, the pleura was initially punctured just above the top of the lower rib to avoid injury to the inter costal neurovascular bundle. Pigtail catheter was inserted. Data that that have been gathered during the procedure included: Vital stability of patient prior to intervention, amount and nature of initial drainage, pigtail insertion duration, average of pigtail drainage during its insertion, total hospital stay and need for surgical exploration.

Intercostal drain:

The skin incision was made in fifth intercostal space in mid-axillary line and anterior axillary lines over a rib that is below the intercostal level selected for chest tube insertion after administration of local analgesia and systemic analgesic unless contraindicated. Intercostal drain was inserted and directed posterior and inferior. Data that that have been gathered during the procedure includedvital stability of patient prior to intervention, amount and nature of initial drainage,pigtail insertion duration, average of pigtail drainage during its insertion, total hospital stay and need for surgical exploration.

Video-assisted thoracoscopic surgery (VATS):

It was used for exploration of thoracic cavity, evacuation of hemothorax, adhesiolysis and identification of source of bleeding if present. The conventional tri-port right sided approach was used, with CO_2 insufflation, single or double lumen endotracheal intubation and the patient in the semi-supine position.Data that that have been gathered during the procedure included: Amount drainage prior to surgical intervention, vital stability of patient prior to intervention, duration of surgery, amount of blood drained intraoperatively, intraoperative findings and site of bleeding, surgical management taken to site of bleeding (suturing,

cautery, ligation, clipping, and gluing), any problem to achieve the site of the bleeding or dealing with it by VATS, the need to convert to open thoracotomy. Postoperatively, data collection included: Patient extubated intraoperatively or not, need for ICU postoperatively, postoperative ICU stay, VAS score for pain at first postoperative day, seventh day and one month later, ICD duration, average of ICD drainage during its insertion, need for re-surgery or intervention and total hospital stay.

Exploratory thoracotomy:

Thoracotomy in 5^{th} intercostal space (anterolateral or posterolateral. Data that that have been gathered during the procedure included: Amount drainage prior to surgical intervention, vital stability of patient prior to intervention, duration of surgery, amount of blood drained intraoperatively, intraoperative findings and site of bleeding, surgical management taken to site of bleeding (suturing, cautery, ligation, clipping, and gluing), any problem to achieve the site of the bleeding or dealing with it by VATS, the need to convert to open thoracotomy. Postoperatively, data collection included: Patient extubated intraoperatively or not, need for ICU postoperatively, postoperative ICU stay, VAS score for pain at first postoperative day, seventh day and one month later, ICD duration, average of ICD drainage during its insertion, need for re-surgery or intervention and total hospital stay.

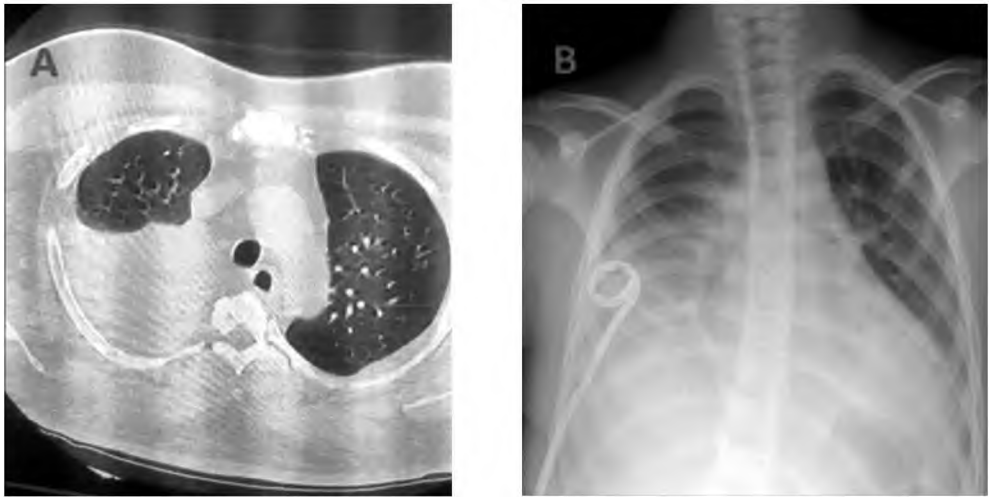

Fig. (1): A case of delayed traumatic hemothorax managed by pigtail catheter.

A: Computed tomography of chest showing right hemothorax.

B: Right hemothorax drained by pigtail catheter.

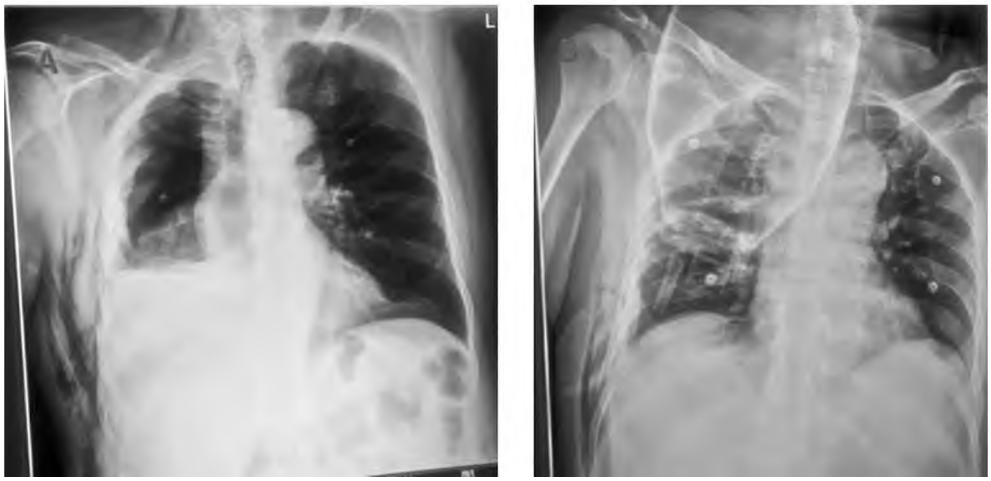

Fig. (2): Chest X-ray of case of delayed hemothorax managed by intercostal drain.

A: Chest X-ray showing delayed hemothorax 24 hours after admission.

B: Follow-up chest X-ray after drainage by intercostal drain.

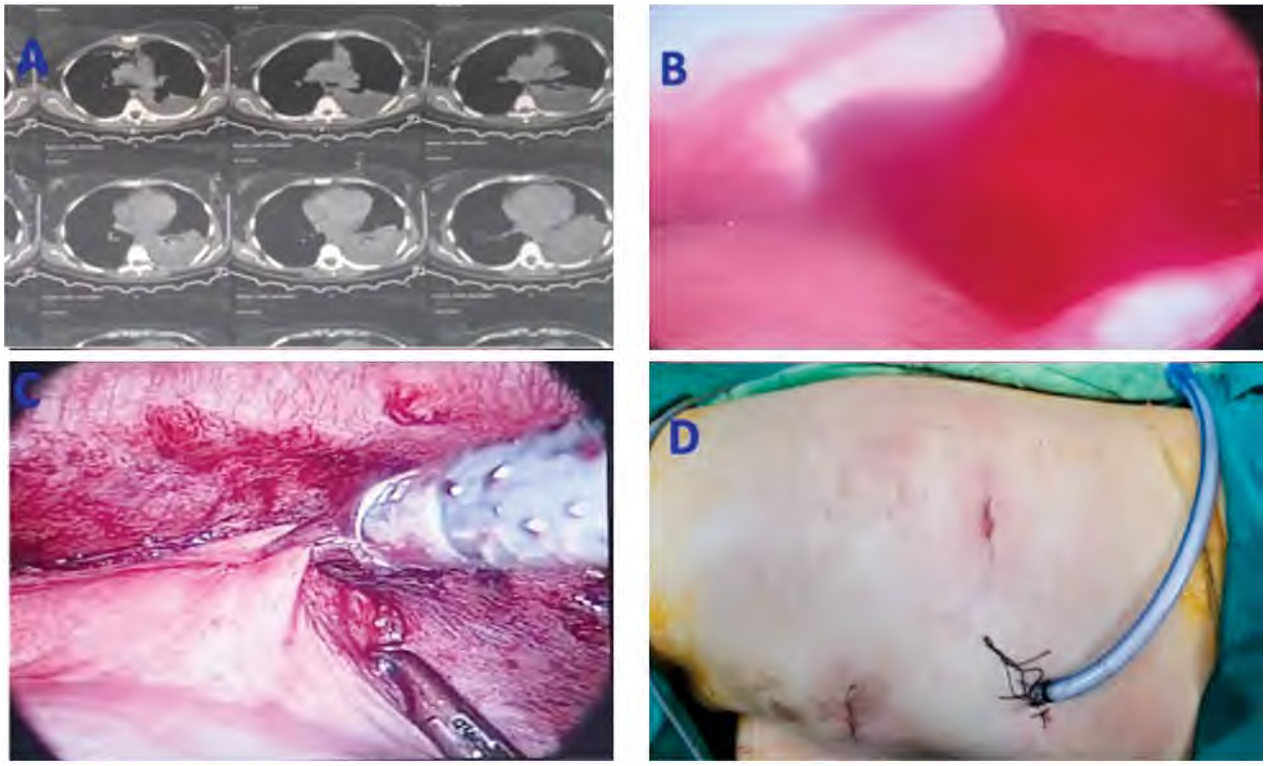

Fig. (3): A case of delayed traumatic hemothorax managed by VATS.

A: Computed tomography showing left delayed hemothorax.
B: VATS showing left pleural collection.
C: VATS showing checking the diaphragm for any tears.
D: 3 port VATS and ICD in place.

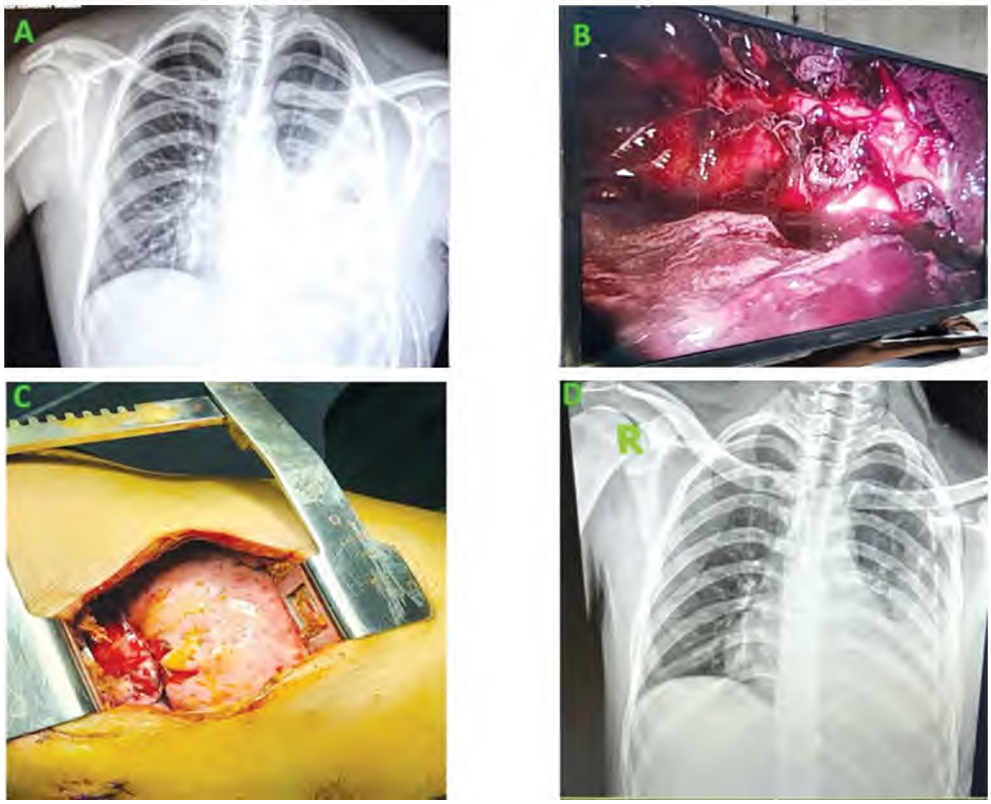

Fig. (4): A case of delayed traumatic hemothorax was initially managed by VATS then converted to exploratory decortication.

A: Chest X-ray of delayed hemothorax with left ICD.
B: VATS showed fibrosis and thick pleura.
C: Conversion to exploratory thoracotomy & decortication was performed.
D: Post-operative chest X-ray after decortication.

Results

A total of twenty patients were included in our study. The mean age was 37.05 years; 13 cases presented RTA, 4 cases after FFH and 3 cases after falling down. Relapsed time between trauma and detection of hemothorax was 5.15±6.55 days. 11 cases had rib fractures, 5 cases had lung contusion, and 4 cases had rib fracture and lung contusion.

Eleven cases showed fracture ribs (55%), five cases showed lung contusions (25%) and four cases showed both fracture ribs and lung contusions (20%).

Table (1): Distribution of the studied cases according to associated traumatic thoracic injuries.

	No.	%
Associated traumatic thoracic injuries:		
Fracture Ribs	11	55.0
Lung contusions	5	25.0
Fracture Ribs & Lung contusion	4	20.0

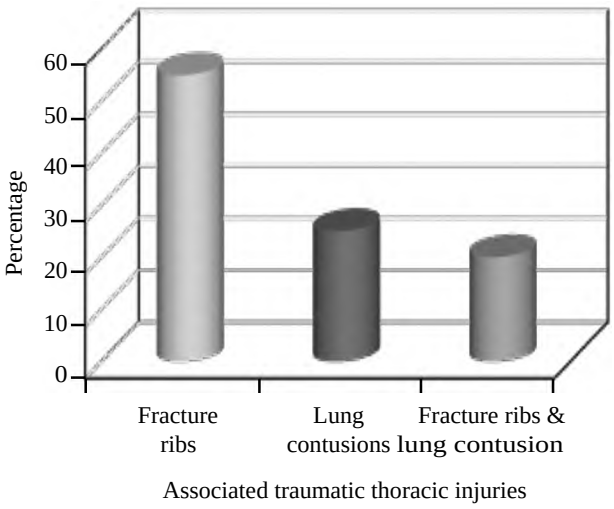

Fig. (5): Bar graph showing percentage of associated thoracic trauma.

Sixteen cases were successfully managed by inter costal drain (ICD) (80%), one case was managed initially by ICD then managed by thoracotomy (5%), one case was initially managed by ICD then managed by video-assisted thoracoscopic surgery (VATS) (5%), one case was successfully managed by pigtail (5%) and one case was managed initially by VATS then managed by thoracotomy (5%).

Table (2): Distribution of the studied cases according to way of management.

Way of management	No.	%
ICD only	16	80.0
ICD followed by Thoracotomy	1	5.0
ICD followed by VATS	1	5.0
VATS converted to Thoracotomy	1	5.0
Pigtail	1	5.0

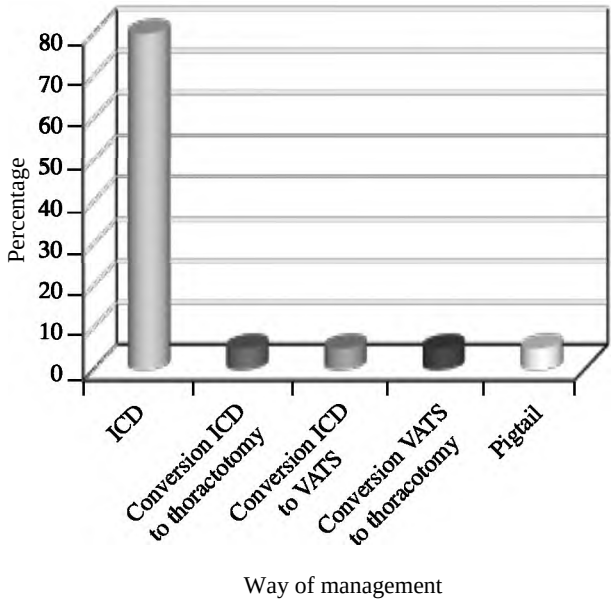

Fig. (6): Bar graph showing percentages for different ways of management

Discussion

Hemothorax is an accumulation of blood in the pleural space and characterized by a pleural fluid haematocrit more than 50% of the patient's peripheral blood haematocrit. The amount of blood in the pleural space determines the severity of the hemothorax classifying it as mild, moderate and massive. Delayed hemothorax is a rare sequence of thoracic trauma. This should be detected to prevent complications such as empyema, sepsis and fibrosis **[1].**

Regarding the time relapse between trauma and hemothorax, it ranged from 1 day to 30 days. In our study, we considered delayed hemothorax is accumulation of blood in the pleural space 24 hours after trauma that is not recognized during initial examination.

In agreement with literature by Shorr et al. **[2,3]**, it is defined as an accumulation of blood in

pleural space 24 hours after trauma without being recognized in initial examinations. But in contrary to other literature by Ritter et al., [4] he defined delayed hemothorax as hemothorax identified in further tests after two hours of the initial assessment after blunt thoracic trauma. Some cases have been reported that delayed hemothorax developed 44 days after trauma [5,6].

Regarding Age and associated thoracic injuries, age is a risk factor for the development of delayed hemothorax. In our study, 55% of cases of delayed hemothorax were more than 35 years old and the mean age was 37 years. Rib fracture was the most common associated thoracic injury as 55% of cases were associated with isolated rib fracture. Twenty percent of cases were associated with lung contusion and 25% of cases were associated with rib fracture and lung contusions.

According to literature, age is found to be a common risk factor for delayed hemothorax, but the mean age was 60 years and was commonly associated with rib fracture. So, these patients need watchful follow-up by chest radiography for 2–30 days after the initial trauma [7].

Choi J et al. [8] stated that patients aged 50-64 years with delayed hemothorax were exposed to trauma of high force but patients aged older than 65 years were exposed to ground- level falls [8].

As reported by some authors, at least fracture of one rib was found in the patients with delayed traumatic hemothorax as 65.4% of cases were with one rib fracture and 34.6% of cases were with two [2,15,16].

P. Misthos et al. [2] also agreed that lung contusion was noted associated with rib fracture on CT scans, but in his opinion, there should be a lung laceration [2].

In line with Sharma OP et al., except for pediatric patients; the frequency of hemothorax in blunt thoracic trauma rises in direct proportion to the number and severity of rib fractures. Children's chest walls are more flexible because they don't have as much calcification. A child's rib fractures are concerning since they show a significantly increased energy absorption. Significant thoracic injuries in children can occur without any signs of damage to the chest wall [17].

Emond M. et al. [18] innovated a scoring system to predict the possibility of development of delayed hemothorax. They take two factors into consideration, age and rib fracture. Age more than 70 years takes 2 points and age 45-70 years takes 1 point. Site of fractured rib, high or mid rib takes 2 points. 3 or more fractured ribs take one 1 point. This would help to identify patients with high risk of development of delayed hemothorax with 90% specificity.

Regarding mechanism of trauma, the most common mechanism of trauma was RTA as 65% of cases were due to RTA. The second common mechanism was FFH (about 20%) and 15% of cases were associated with minor trauma like FD.

Based on literature, the most prevalent cause of trauma was road traffic accidents or pedestrian accidents (80.9%). However,only 5.2% of these events resulted in delayed hemothorax. Furthermore, the majority of these research were retrospective, and no collective prospective study is within our knowledge about delayed hemothorax following mild blunt thoracic trauma [2].

Regarding management of delayed hemothorax by pigtail catheter, 5% of cases were successfully managed by pig-tail catheter.

In the words of Orlando et al. [19] large bore chest tube is not superior to small bore tube. Both sizes showed risks and benefits. The risk of complications of chest tubes was similar for small-bore and large-bore tubes. Small-bore tubes had the benefit of less pain at site of insertion and insertion perception experienced by patients, but they had higher risk of pneumonia. Large-bore tubes had high rate of drain age (4 times) than small-bore tubes, but they had higher risk of VATS [19,20].

Regarding methods of management, ICD was the most common method of management as 90% of cases were initially managed by ICD. 80% of cases were successfully managed by ICD. And 5% of cases were managed initially by ICD then by VATS and 5% of cases were managed initially by ICD then by thoracotomy. 5% of cases were successfully managed by pig tail catheter. 5% of cases were managed initially by VATS then converted to thoracotomy. VATS cases have short hospital stay and better identification and management of the pathology.

In the opinion of literature, ICD was the most common way of management as 80.7% of cases were managed by ICD, 15.4% of cases were managed by thoracentesis and 3.9% of cases were managed by thoracotomy [5].

Also, in agreement with literature, delayed hemothorax is uncommon sequelae after chest trau-

ma and infrequently considered. For the management of delayed hemothorax, ICD is frequently required and adequate. But it may cause less frequent problems such retained hemothorax or fibrothorax necessitate invasive care. The mortality rate linked to these issues emphasizes how crucial it is to detect delayed hemothorax [21].

Since ICD is used to manage majority of cases of delayed hemothorax, surgery is required in 0.4% of cases. VATS may be required to evacuate the coagulated hemothorax to prevent empyema and fibrothorax and to manage active bleeding through minimal invasive approach [22].

With regard to Park CH et al., [23] in vitally stable patients, ICD insertion is performed first then start conservative measurement with checking the drainage status. In case of active bleeding or the patient become unstable, surgical treatment should be considered like open thoracotomy and VATS. Recent research has revealed that VATS is more feasible and stable than standard thoracotomy.

Study limitations: This study included a relatively small number of patients and included a single hospital.

Conclusion:

In conclusion, Patients with blunt thoracic trauma should be followed-up clinically and with chest X-ray during a period between 1-30 days after trauma especially in elderly patients and whenever there is a rib fracture. The earlier the intervention, the better results are obtained, and fewer complications occur.

Video-assisted thoracoscopic surgery (VATS) is considered the one of the best modalities in managing delayed hemothorax as it allows optimum drainage, exploration of thoracic cavity, detection of the source of bleeding and decrease chance of development of retained hemothorax.

Declarations:

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Conflicts of Interest: The authors have no conflicts of interest to declare that are relevant to the content of this article.

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Data availability: The relevant raw data can be obtained upon reasonable request by contacting the author.

Ethics approval: The study was conducted in accordance with the principles of good clinical practice and the Declaration of Helsinki. All patients provided written informed consent. The study protocol was approved by Alexandria Faculty of Medicine Ethical Committee (serial number: 0107886).

References

1- ZEILER J., IDELL S., NORWOOD S. and COOK A.: Hemothorax: A review of the literature. Clinical Pulmonary Medicine, 27 (1): pp.1-12. 2020.

2- MISTHOS P., KAKARIS S., SEPSAS E., ATHANASSIADI K. and SKOTTIS I.: A prospective analysis of occult pneumothorax, delayed pneumothorax and delayed hemothorax after minor blunt thoracic trauma. European Journal of Cardio-Thoracic Surgery, 25 (5): pp.859-864. 2004.

3- SHORR R.M., CRITTENDEN M., INDECK M., HARTUNIAN S.L. and RODRIGUEZ A.U.R.E.L.I.O.: Blunt thoracic trauma analysis of 515 patients. Annals of Surgery, 206 (2): pp.200-205, 1987.

4- RITTER D.C. and CHANG F.C.: Delayed hemothorax resulting from stab wounds to the internal mammary artery. Journal of Trauma and Acute Care Surgery, 39 (3): pp.586-589, 1995.

5- ÁLVAREZ-ORTEGA A.C., ARANDA-HOYOS A., POSSO-NUÑEZ J.A., GARCÍA-GONZÁLEZ C.A., PUYANA J.C., SÁNCHEZ-ORTIZ Á.I. and VELÁSQUEZ-GALVIS M.: Delayed hemothorax following blunt thoracic trauma: A case report. Journal of Cardiothoracic Surgery, 19 (1): p.395, 2024.

6- ZIAPOUR B., MOSTAFIDI E., SADEGHI-BAZARGANI H., KABIR A. and OKEREKE I.: Timing to perform VATS for traumatic-retained hemothorax (a systematic review and meta-analysis). European Journal of Trauma and Emergency Surgery, 46 (2): pp.337-346, 2020.

7- AHN S., LEE, S., KIM S., MOON S., CHO H., SHIN H.J. and PARK J.H.: Risk factors for delayed hemothorax in patients with rib fracture in the emergency department. The American Journal of Emergency Medicine, 76: pp.173-179, 2024.

8- CHOI J., ANAND A., SBOROV K.D., WALTON W., CHOW L., GUILLAMONDEGUI O., DENNIS B.M., SPAIN D. and STAUDENMAYER K.: Complication to consider: delayed traumatic hemothorax in older adults. Trauma surgery & acute care open, 6 (1), 2021.

9- SMITH R.S., VANZANT E. and CATENA F.: Pneumothorax and Hemothorax. In Thoracic Surgery for the Acute Care Surgeon (pp. 159-168), 2020. Cham: Springer International Publishing.

10- BEETON G., NGATUVAI M., BREEDING T., ANDRADE R., ZAGALES R., KHAN A., SANTOS R. and

ELKBULI A.: Outcomes of pigtail catheter placement versus chest tube placement in adult thoracic trauma patients: A systematic review and meta-analysis. The American SurgeonTM, 89 (6): pp.2743-2754, 2023.

11- MESSA G.E., FONTENOT C.J., DEVILLE P.E., HUNT J.P., MARR A.B., SCHOEN J.E., STUKE L.E., GREIFFENSTEIN P.P. and SMITH A.A.: Chest tube size selection: evaluating provider practices, treatment efficacy, and complications in management of thoracic trauma. The American SurgeonTM, 90 (6): pp.1501-1507, 2024.

12- BAUMAN Z.M., KULVATUNYOU N., JOSEPH B., GRIES L., O'KEEFFE T., TANG A.L., et al.: Randomized clinical trial of 14-French (14F) pigtail catheters versus 28–32F chest tubes in the management of patients with traumatic hemothorax and hemopneumothorax. World Journal of Surgery, 45: 880-6, 2021.

13- ELSAYED A., ALKHALIFA R., ALODAYNI M., ALANAZI R., ALKHELAIWY L., ZALAH M., ALNAELI G., ALORABI T., AL-QARNI M. and AL-OTAIBI S.: Implication of pigtail catheter vs chest tube drainage. Int. J. Community Med. Public Health, 5 (9): pp.3686-90, 2018.

14- MEHROTRA M., D'CRUZ J.R., BISHOP M.A. and ARTHUR M.E.: Video-assisted thoracoscopy. In StatPearls [Internet]. StatPearls Publishing, 2024.

15- PLOURDE M., EMOND M., LAVOIE, A., GUIMONT C., LE SAGE N., CHAUNY J.M., BERGERON É., VANIER L., MOORE L., ALLAIN-BOULE N. and FRATU R.F.: Cohort study on the prevalence and risk factors for delayed pulmonary complications in adults following minor blunt thoracic trauma. Canadian Journal of Emergency Medicine, 16 (2): pp.136-143, 2014.

16- CHEN C.L. and CHENG Y.L.: Delayed massive hemothorax complicating simple rib fracture associated with diaphragmatic injury. The American Journal of Emergency Medicine, 32 (7): pp.818-e3, 2014.

17- SHARMA O.P., HAGLER S. and OSWANSKI M.F.: Prevalence of delayed hemothorax in blunt thoracic trauma. The American Surgeon, 71 (6): pp.481-486, 2005.

18- ÉMOND M., GUIMONT C., CHAUNY J.M., DAOUST R., BERGERON É., VANIER L., MOORE L., PLOURDE M., KUIMI B., BOUCHER V. and ALLAIN-BOULÉ N.: Clinical prediction rule for delayed hemothorax after minor thoracic injury: A multicentre derivation and validation study. Canadian Medical Association Open Access Journal, 5 (2): pp.E444-E453, 2017.

19- ORLANDO A., CORDERO J., CARRICK M.M., TANNER A.H., BANTON K., VOGEL R., LIESER M., ACUNA D. and BAR-OR D.: Comparing complications of small-bore chest tubes to large-bore chest tubes in the setting of delayed hemothorax: A retrospective multicenter cohort study. Scandinavian journal of trauma, resuscitation and emergency medicine, 28(1): p.56, 2020.

20- LEWIS M.R. and GEORGOFF P.: Minimally invasive management of thoracic trauma: Current evidence and guidelines. Trauma surgery & acute care open, 9 (Suppl 2), 2024.

21- CHOKSHI T., THEODOSOPOULOS A., WILSON E., YSIT M., ALHADI S. and RANASINGHE, L.: A Case Report of Delayed Hemothorax Complicated by Fibrothorax. Asploro Journal of Biomedical and Clinical Case Reports, 4 (3): p.184, 2021.

22- ÁLVAREZ-ORTEGA A.C., ARANDA-HOYOS A., POSSO-NUÑEZ J.A., GARCÍA-GONZÁLEZ C.A., PUYANA J.C., SÁNCHEZ-ORTIZ Á.I. and VELÁSQUEZ-GALVIS M.: Delayed hemothorax following blunt thoracic trauma: A case report. Journal of Cardiothoracic Surgery, 19 (1): p.395, 2024.

23- PARK C.H., KIM K.E., CHAE M.C. and LEE J.W.: Delayed massive hemothorax after blunt thoracic trauma requiring thoracotomy by VATS: A case report. Journal of Surgical Case Reports, 2022 (1): p.rjab537, 2022.

الكشف عن طرق مختلفة لإدارة نزيف الصدر الرضحى المتأخر

نزيف الصدر الرضحى المتأخر هو حالة نادرة من إصابات الصدر الحادة. يُعرّف بأنه تراكم للدم فى التجويف الصدرى بعد ٢٤ ساعة على الأقل من إصابة صدرية حادة دون أن يُكتشف فى الفحوصات الأولية.

عوامل خطر الإصابة المتأخرة بتدمى الصدر الرضحي هى كسر الضلع، خاصةً مع التقدم في السن، وكدمة رئوية متوسطة إلى شديدة. قد يُسبب كسر الضلع إصابة الأوعية الدموية بين الضلوع، أو نزيفًا من أنسجة الرئة، أو إصابة الأوعية الدموية الكبيرة. قد تشمل الأعراض السريرية ضيق التنفس وألم الصدر، وذلك حسب كمية الدم المتراكم فى الصدر. قد يُعانى المريض أيضًا من الحمى فى حال إصابة الصدر المتراكم بالعدوى.

يمكن إجراء الفحوصات الأولية باستخدام تصوير الصدر بالأشعة السينية فى وضعية الوقوف. ويُستخدم هذا التصوير للتقييم السريع لإصابات الصدر فى غرف الطوارئ. يُعدّ التقييم المُركّز المُوسّع مع التصوير بالموجات فوق الصوتية فى حالات الإصابات اختبارًا سريريًا يُستخدم فى حالات الإصابات الحادة. كما يُجرى تصوير الصدر بالأشعة المقطعية المحوسبة لتقييم أفضل لإصابات الصدر. يُنصح بإجراء تصوير الصدر بالأشعة السينية المتابعة بعد مرور فترة تتراوح بين يوم واحد و٤٠ يومًا من الإصابة.

العلاج الأولى هو فغر الصدر الأنبوبى، وذلك حسب كمية الدم فى التجويف الصدرى، حيث إن معظم حالات تدمي الصدر تزول بالتصريف بين الأضلاع. يُعتبر وجود دم متبقٍ فى التجويف الصدري بعد التصريف تدميًا صدريًا مُحتَجَزًا. سيؤدى ذلك إلى مضاعفات مثل الدُبَيْلَة (الدُبَيْلَة) والتليف الصدرى إذا لم يُفرَغ التدمى الصدرى المُحتَجَز. قد تظهر هذه المضاعفات أيضًا إذا لم يُكتَشَف التدمى الصدرى المُتَأَخِّر ويُعالَج بسرعة.

لا يوجد فرق فى نتيجة تفريغ دم الصدر المتأخر بين جهاز تصريف بين الأضلاع صغير وكبير الحجم. يكمن الفرق فى سرعة التفريغ، إذ يكون أسرع فى جهاز تصريف كبير الحجم، بينما قد يكون أقل إيلامًا فى جهاز تصريف صغير الحجم.

قسطرة الضفيرة خيارٌ آخر لعلاج تأخر نزف الصدر. تتميز بسهولة وبساطة استخدامها، كما أنها أقل صدمةً وتتطلب شقًا صغيرًا لإدخالها، وهى أقل ألمًا من أنبوب فغر الصدر. كما أن قيودها على الحركة أقل.

من طرق العلاج الأخرى جراحة تنظير الصدر بمساعدة الفيديو، وهى بديلٌ طفيف التوغل لشق الصدر التقليدى، وتوفر مزايا مثل تقليل الألم بعد الجراحة، وتسريع التعافى، وتقصير مدة الإقامة فى المستشفى. تُعدّ جراحة تنظير الصدر بمساعدة الفيديو أفضل طريقة علاجية، إذ تُسهّل استكشاف تجويف الصدر، والسيطرة على النزيف المستمر، وإزالة الجلطات المتراكمة. التوقيت الأمثل لإجراء جراحة تنظير الصدر بمساعدة الفيديو هو خلال ٧٢ ساعة من ظهور احتباس الدم فى الصدر، مما يرتبط بارتفاع معدلات النجاح وتقليل مدة الإقامة فى المستشفى. وبناءً على ذلك، تُعتبر جراحة تنظير الصدر بمساعدة الفيديو تدخلاً فعالاً فى إدارة احتباس الدم فى الصدر الذى يتطلب تصريفًا فوريًا.

يُعدّ استكشاف بضع الصدر أيضًا وسيلةً علاجيةً في حال فشل جراحة المنظار الصدرى بمساعدة الفيديو. قد يكون ذلك بسبب الالتصاقات الشديدة وانحباس الرئة، ما يستدعى تقشيرها.