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Short Review Article

Prognosis of Recurrent Thoracocentecis in Malignant Pleural Effusion- A Systematic Review

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Abstract

Most thoracic and extra-thoracic cancers have a significant consequence called malignant pleural effusion (MPE). Dyspnea is the primary symptom of MPE, and as a result, it significantly affects the patients' quality of life. Thoracocentesis has been used as one of several therapies to ease the distress of dyspnea in already ill patients. It is a quick, easy, and successful process. However, this surgery solely tries to treat the symptoms of MPE. It is yet unclear how this symptom-relieving mechanism influences the prognosis. Although the insertion of an IPC greatly reduced dyspnea, the median quality-adjusted survival rate was just 95 QALDs (Quality-Adjusted Life Days). Particularly in patients with more severe baseline dyspnea and those who underwent radiation or chemotherapy following IPC installation, modest utility increases were seen. However, additional recurrences occurred when IPCs were removed because to issues or failures. In this study, we investigated whether repeat thoracocentesis in MPE patients affected the prognosis of the illness over the long term.

Introduction

A frequent consequence of metastatic thoracic and extra-thoracic malignancies is malignant pleural effusion (MPE). Thoracentesis, which entails inserting tiny catheters to drain the pleural cavity, is described as a temporary fix with a high risk of recurrence, although it could be appropriate for extremely weak patients, those with a short life expectancy, or those who are not candidates for pleurodesis or IPC use. The significance of pleural fluid analysis in the diagnosis of MPE and its varied diagnostic yield depending on the kind of malignancy are also covered in the introduction. Predicting the prognosis of patients with MPE may help in choosing the best therapy since these patients often have a bad prognosis.

Overview

The identification of cancer cells in the pleural fluid, or indications that the pleural fluid is derived from a malignant cause, serves as a diagnostic criterion for malignant pleural effusion (MPE) (1). Malignant pleural effusion (MPE) is a pathological disease seen in around 15% of individuals diagnosed with cancer, and it is characterised by an unfavourable prognosis and a diminished quality of life. The average survival duration

for individuals who have been diagnosed with malignant pleural effusion (MPE) ranges from three to twelve months. (4) Annually, the United States experiences around 150,000 newly reported instances of MPE, whereas Europe records approximately 100,000 new cases. (3)

Prognosis

Individuals diagnosed with advanced neoplasms may have a severe medical condition referred to as malignant pleural effusion (MPE). Mesothelioma is a commonly seen aetiology of malignant pleural effusion (MPE), and it is characterised by a median survival period ranging from 8 to 12 months, however there is considerable variation among individual patients. In this study, Jacobs et al. (2021) conducted a comprehensive review of the diagnosis and management of malignant pleural effusion over the course of a decade. The article titled "Diagnostics (Basel). 2022 Apr 18;12(4):1016" discusses the topic of diagnostics in an academic manner. The article referenced by the PubMed ID 35454064, PMCID PMC9030780, and DOI 10.3390/diagnostics12041016 is being discussed. Based on the findings shown in Table 2, it can be seen that patients diagnosed with lymphoma exhibited the most extensive median survival period, lasting for a duration of 26 months. Subsequently, those afflicted with ovarian and breast carcinomas saw comparatively shorter median survival durations, amounting to 18 and 15 months, respectively. The survival time of patients diagnosed with non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC) was found to be 9.5 and 6 months, respectively. Similarly, patients with mesothelioma had a survival time of 8 months (Anevlavis et al., n.d.). This study examined prognostic factors in patients presenting with pleural effusion revealing malignancy. 2014; 87:311-316 (doi:10.1159/000356764) By the fifteenth day, a total of 30% of the patients had encountered a relapse in their respiration.

Management

The most common treatments for this illness are a conservative strategy, recurrent thoracentesis, chest tube with chemical pleurodesis, pleuroscopy with chemical pleurodesis, video assisted thoracoscopic surgery (VATS) pleurodesis, and the insertion of indwelling pleural catheters (IPCs). Patients without a NEL now have access to a novel therapy option: inhalational talc slurry via IPC. A patient's underlying disorders, performance level, and the need for an appropriate tissue sample for diagnosis all need to be taken into consideration when designing a treatment plan with symptom reduction as its primary goal. (5) The initial step in any medical operation is a thoracentesis, which is best conducted with ultrasound guidance (4).

Thoracentesis

Diagnostic and therapeutic thoracentesis procedures are commonplace. In order to provide direct guidance and designate the correct entrance location, an ultrasound is conducted just before the surgery. Aseptic techniques are used while aspirating pleural fluid. A thoracentesis may be performed if there is no clear reason not to. Mild to severe coagulopathy and thrombocytopenia do not raise the risk of bleeding. Diagnosis and treatment of malignant pleural effusions: current concepts, 2017; Desai NR, Lee HJ. PMID: 29214068; PMCID: PMC5696546). J Thorac Dis. 2017 Sep;9(Suppl 10): S1111-S1122. doi: 10.21037/jtd.2017.07.79.

Pleurodesis

During pleurodesis, the parietal and visceral pleura are brought together to form a single layer. This removes the pleural gap and prevents the accumulation of pleural effusion. Intrapleural instillation of a number of chemicals, including as talc, bleomycin, tetracycline, corynebacterium parvum, and doxycycline, has been used to successfully perform pleurodesis. This procedure may be performed either mechanically or chemically.During a thoracoscopy, the talc may be delivered via a chest tube either as a suspension (also known as talc slurry) or as an atomizer (also known as talc poudrage). After all fluid has been drained from the chest cavity, a procedure known as "bedside" or "slurry" pleurodesis, in which a sclerosant is injected into the pleural cavity through an intercostal chest drain, has been the primarystay of treatment for a significant amount of time. This technique tries to prevent the reaccumulation of pleural fluid by fusing the pleural layers together. This is accomplished by generating local inflammation by the use of the pleurodesis agent.

During a thoracoscopy, a sclerosant may be injected into the pleural cavity in order to accomplish pleurodesis while simultaneously draining an effusion (Rahman, 2010). Thoracoscopy may be performed in either a diagnostic capacity (medical thoracoscopy) or a therapeutic one (video-assisted thoracoscopic surgery, abbreviated as VATS). In each of these operations, the pleural fluid will be drained, and a fiberoptic camera will be used to examine the pleural chamber. The dissection of loculations and the collection of biopsies are also options for obtaining a histological diagnosis. After the therapy has been completed, the lung is allowed to re-expand with the use of a temporary chest tube that remains in place.

Dipper A, Jones HE, Bhatnagar R, Preston NJ, Maskell N, and Clive AO collaborated on the development and execution of a network meta-analysis of therapies for the treatment of malignant pleural effusions. The results were published in the Cochrane Database Syst Rev on April 21, 2020, volume 4 issue 4 (DOI: 10.1002/14651858.CD010529.pub3; PMCID: PMC7173736).

Indwelling Pleural Catheters

The chest tubes described here are designed for long-term use and are tunnelled under the skin. This allows for regular and intermittent draining of fluids to be conducted outside of a hospital setting. This approach has the potential to reduce the frequency of hospital visits for patients. In the study conducted by Dipper et al. (year), the authors performed a network meta-analysis to evaluate several interventions for the therapy of malignant pleural effusions. The citation provided is from the Cochrane Database of Systematic Reviews, dated April 21, 2020, with the reference number CD010529. The article has a Digital Object Identifier (DOI) of 10.1002/14651858.CD010529.pub3. The PMID (PubMed ID) is 32315458, and the PMCID (PubMed Central ID) is PMC7173736. In the context of a brief medical intervention, these devices may be implanted to facilitate ambulatory drainage. Similar to pleurodesis, they can lead to a reduction in dyspnea and an improvement in quality of life. Nevertheless, the management of indwelling pleural catheters necessitates continuous attention due to the possibility of complications that may result in hospitalisation. These complications include pleural infection, blockage, symptomatic loculation, and catheter track metastasis (Thomas et al., [year]). The AMPLE Randomised Clinical Trial investigates the impact of an indwelling pleural catheter compared to talc pleurodesis on the duration of hospitalization in patients diagnosed with malignant pleural effusion. The article titled "JAMA. 2017 Nov 21;318(19):1903-1912" was published in the Journal of the American Medical Association. The article's digital object identifier (DOI) is 10.1001/jama.2017.17426, and it can be found using the PubMed ID (PMID) 29164255 or the PubMed Central ID (PMCID) PMC5820726.

Purpose

In order to identify the parameters most likely to predict long-term survival in patients with malignant pleural effusion (MPE), this review of the literature investigates the long-term prognosis of repeated thoracocentesis in the therapy of MPE patients. The best course of therapy may be more effectively chosen

if MPE prognosis can be predicted (4).

Methods

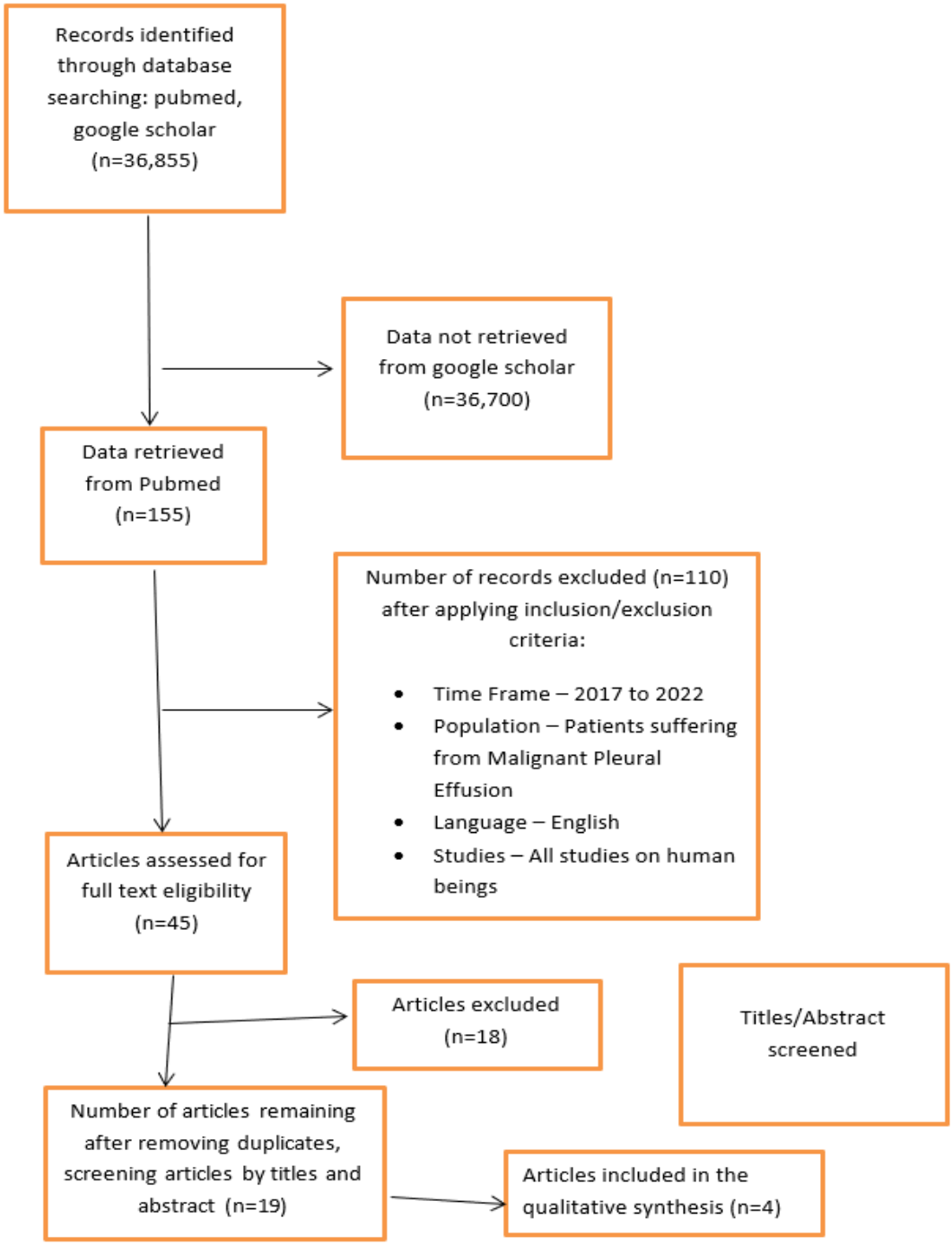
Does repeated thoracocentesis alter the long-term prognosis in malignant pleural effusion? was the purpose of this systematic study. According to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, this systematic review was carried out. The PRIMSA flow diagram of the various review phases is shown in Figure 1. Online databases consulted were PubMed and Google Scholar. Every item published between December 31, 2016, and December 10, 2022 was eligible for examination. Data was not acquired from Google Scholar but rather from Pubmed. All studies published in English and done between 2017 and 2022 on people with malignant pleural effusion were subject to the inclusion/exclusion criteria. Duplicates were eliminated after an independent evaluation of the titles, abstracts, and full-text publications. The choice of articles received positive reviews from both reviewers. Disagreements were settled by conversation until agreement was attained. Using a tool scale termed evaluation of SA Narrative Review Articles (SNARA), the quality and bias risk of the remaining complete articles were evaluated. The tool features a unique set of standards and grading procedures. A minimum score of 80% was necessary on the assessment tool.

Keywords:

Sr No	Topic	Database	Number of Articles	Database	Number of Articles
1	Recurrent Thoracocentesis AND Malignant Pleural Effusion	Pubmed	98	Google Scholar	19,400
2	Prognosis of Malignant Pleural Effusion AND Recurrent Thoracocentesis	Pubmed	33	Google Scholar (Data not retrieved, n=5880)	17,300

MeSH Terms:

CONCEPTS	KEYWORDS	PUBMED DATABASE
(("Pleural Effusion, Malignant/anatomy and histology"[Majr] OR "Pleural Effusion, Malignant/classification"[Majr] OR "Pleural Effusion, Malignant/complications"[Majr] OR "Pleural Effusion, Malignant/cytology"[Majr] OR "Pleural Effusion, Malignant/diagnosis"[Majr] OR "Pleural Effusion, Malignant/diagnostic imaging"[Majr] OR "Pleural Effusion, Malignant/drug therapy"[Majr] OR "Pleural Effusion, Malignant/epidemiology"[Majr] OR "Pleural Effusion, Malignant/etiology"[Majr] OR "Pleural Effusion, Malignant/mortality"[Majr] OR "Pleural Effusion, Malignant/pathology"[Majr] OR "Pleural Effusion, Malignant/physiology"[Majr] OR "Pleural Effusion, Malignant/physiopathology"[Majr] OR "Pleural Effusion, Malignant/prevention and control"[Majr] OR "Pleural Effusion, Malignant/rehabilitation"[Majr] OR "Pleural Effusion, Malignant/therapy"[Majr])) AND (("Thoracentesis/instrumentation"[Majr] OR "Thoracentesis/methods"[Majr] OR "Thoracentesis/mortality"[Majr] OR "Thoracentesis/pharmacology"[Majr] OR "Thoracentesis/standards"[Majr] OR "Thoracentesis/statistics and numerical data"[Majr] OR "Thoracentesis/therapeutic use"[Majr] OR "Thoracentesis/therapy"[Majr] OR "Thoracentesis/trends"[Majr]))	Malignant Pleural Effusion OR MPE AND Thoracocentesis OR Pleural Tap	24


Records identified through database searching: pubmed, google scholar (n=36,855)
Data not retrieved from google scholar (n=36,700)
Data retrieved from Pubmed (n=155)
Number of records excluded (n=110) after applying inclusion/exclusion criteria:
Time Frame – 2017 to 2022
Population – Patients suffering from Malignant Pleural Effusion
Language – English
Studies – All studies on human beings
Articles assessed for full text eligibility (n=45)
Articles excluded (n=18)
Titles/Abstract screened
Number of articles remaining after removing duplicates, screening articles by titles and abstract (n=19)
Articles included in the qualitative synthesis (n=4)

Results

Figure 1 explains the search strategy and data extraction process, respectively. Upon applying the search strategy, and after screening, a total of four studies were retained.

Author	Title	Background	Method	Result	Conclusion
Grosu, H. B. et all	Factors that increase the likelihood of recurrent pleural effusion in cancer patients	Patients with malignant pleural effusion (MPE) are treated primarily to alleviate their symptoms. Because doctors don't know what causes fluid to return, they sometimes have patients endure many thoracenteses before deciding on a permanent solution. The major purpose of this research was to determine what variables would increase the likelihood of MPE symptoms returning.	Patients who had their first thoracentesis were the subjects of a retrospective, multicenter cohort research. The major measure was the duration until individuals with signs of metastatic illness had a fluid recurrence necessitating intervention. To determine what variables could lead to fluid recurrence, we used a cause-specific hazard model. In addition, we used the Fine-Gray subdistribution hazard model to create a prediction model and verified its accuracy via an independent source.	There was a total of 988 people who had metastatic illness. By the fifteenth day, a notable proportion of patients, namely 30%, had encountered a recurrence, hence adding to a substantial cumulative recurrence rate. The results of the multivariate analysis revealed a significant association between larger quantities of pleural fluid drained (HR: 1.06, 95% CI: 1.04-1.07, P 0.0001) and higher levels of pleural fluid LDH (HR: 1.008, 95% CI: 1.004-1.011, P 0.0001) with an increased risk of recurrence. The individuals who had negative	Risk variables for recurrence included the extent of the pleural effusion, the volume of pleural fluid evacuated, LDH levels, and pleural fluid cytology.

				cytology had a decreased recurrence risk (hazard ratio [HR]: 0.52 [95% CI: 0.43 to 0.64, P 0.0001]). The model's predictions shown a lack of reliability.	
Koegelenberg, C. F. N. et all	The most cutting-edge, effective methods now available for the treatment of malignant pleural effusion	More than one million individuals throughout the world are diagnosed with malignant pleural effusion (MPE). It should come as no surprise that there is a considerable degree of diversity in the treatment of MPE given the paucity of information about the therapeutic approach to the condition. We wanted to give working physicians with an overview of the existing data on the treatment of MPE, with a preference for		MPE pleural interventions are palliative. Most have quick relief with therapeutic thoracentesis. In patients with sluggish recurrence and short survival, it may be repeated. The remaining patients should have definitive treatments based on their desires, performance status, prognosis, and lung expansion. Chemical pleurodesis (intercostal drain or pleuroscopy) and indwelling pleural catheter (IPC) have similar patient outcomes, although IPC	ecause the existence of an MPE indicates that the illness has progressed to a more advanced stage, doctors need to adjust their expectations for the results of an intervention. It is unlikely that life expectancy can be increased, thus relieving patients' symptoms will have to be the major focus of treatment. In the majority of instances, a therapeutic thoracentesis offers rapid alleviation. However, this

		focusing on studies that provide patient-related results rather than pleurodesis alone, as well as advise on how to approach specific patients. We did this by concentrating on research that reflect patient-related outcomes rather than pleurodesis alone.		patients spend less time in hospital and require fewer pleural drainage treatments. Patients without a nonexpandable lung may use IPC talc slurry.	is only the case if there are no other potential explanations for the dyspnea. Therapeutic thoracentesis may be performed more than once, particularly in individuals who have a low rate of disease progression or a very poor prognosis for their life.
Ost, D. E. et all	Differences in Quality and the Relative Efficacy of Different Management Strategies for Recurrent Malignant Pleural Effusions.	Repeat thoracentesis is not recommended by the guidelines for the treatment of recurring malignant pleural effusions (MPEs). Instead, definitive treatments such as indwelling pleural catheters (IPCs) or pleurodesis are encouraged. We came up	Study of retrospective cohorts utilising data from SEER-Medicare between the years 2007 and 2011. Patients aged 66 to 90 years old who had an MPE were considered for inclusion. The main goal was to determine whether or not patients who had quickly recurrent MPE, which was defined as recurrence within 2 weeks after the first thoracentesis, got	In 23,431 cases, thoracentesis was done to remove MPE. 12,967 patients (or 55%) needed a second pleural surgery because to recurrence. Of the 12,967 individuals who had a recurrence, 7,565 (58%) did so within a short amount of time. Care guidelines were followed by 1,811 (24%) of 7,565 patients with fast recurrence. Fewer	Pleurodesis resulted in more hospital days, but guideline consistent treatment employing definitive procedures was related with fewer future operations and problems. This was shown to be the case when comparing the two to repeat thoracentesis.

		with the hypothesis that many patients have numerous thoracenteses as opposed to definitive operations, and that this leads to an increased number of procedures as well as problems.	therapy that was consistent with the recommendations made in the guidelines. A decisive second pleural surgery was what was meant when we spoke about "guideline consistent care."	subsequent pleural procedures, fewer pneumothoraxes (0.0037 vs 0.009 pneumothoraxes per patient, respectively; P =.001), and fewer ED procedures (0.02 vs 0.04 ED procedures per patient, respectively) were seen in patients who had undergone definitive pleural procedures as opposed to repeat thoracentesis (P .0001). When compared to a chest tube or thoracoscopic pleurodesis, repeat thoracentesis and IPCs resulted in fewer hospital days spent in recovery (0.013 vs. 0.013 vs. 0.085 vs. 0.097 inpatient days per day of life, respectively; P .001).	

Wahla, A. S. et all	Managing malignant pleural effusion	There are a few various approaches to treatment for malignant pleural effusion, the most common of which are clinical observation, thoracentesis, the insertion of an indwelling pleural catheter, and chemical pleurodesis. The appropriate course of action is determined by a number of different clinical considerations.	The treatment techniques for malignant pleural effusion are discussed in this article via the use of a few short case presentations.	Patients who are presently undergoing chemotherapy do not need treatment for asymptomatic pleural effusion; rather, they should be watched for progression of the condition. Indwelling pleural catheters are increasingly being employed as first-line treatment in a variety of various clinical scenarios. They are most effective when used to treat effusion in conjunction with lung collapse. Chemical or mechanical pleurodesis is one of numerous procedures that may be used to fill the pleural space in order to stop the buildup of more fluid. This can be achieved in a number of different ways. A simple thoracentesis that is	Although the prognosis is significantly affected by the kind and stage of the cancer, the median amount of time someone survives after receiving a cancer diagnosis is between 4 and 9 months1.–3. The clinical conditions dictate the most appropriate method of patient management. The risks and advantages of each treatment choice should be carefully weighed by medical professionals, who should also keep their patients' practical needs in mind.

				performed as many times as necessary is a fair technique for people who are nearing the end of their lives.	

Discussion

With a prevalence of 660 cases per million people, malignant pleural effusion (MPE) is a growing burden on healthcare systems across the globe, affecting over 1 million people.About 125,000 people in the United States are hospitalised every year due to MPE; this results in an inpatient death rate of over 12% and an annual cost of more than US$5 billion. Malignant pleural effusion (MPE) is a debilitating disease that mostly affects patients with advanced cancer. An MPE patient's typical survival time is between three and six months. The mainstays of care for this condition are rest, repeat thoracentesis, pleurodesis, and indwelling pleural catheters (IPC). Treatment plans should prioritise symptom relief while also taking into account the patient's underlying conditions, current level of performance, and the need of obtaining an adequate tissue sample for diagnosis.

In terms of cancer mortality rates, lung cancer is by far the worst. As many as 15% of people with lung cancer already have an MPE when they're diagnosed, and another 50% will develop one at some point throughout their treatment. Most instances of malignant pleural effusion are caused by lung cancer in males and breast cancer in women.

One symptom of MPE is shortness of breath. Because lung cancer may cause pulmonary collapse and infiltration of the pulmonary artery, resulting in ventilation–perfusion mismatch, the severity of the dyspnea is typically out of proportion to the size of the effusion.

Risk factors for recurrence of pleural effusion includes

- The augmentation in the magnitude of pleural effusion
- Greater volume of pleural fluid drainage

- Elevated levels of lactate dehydrogenase (LDH)
- Positive cytology of pleural fluid accompanied by heightened levels of pleural protein and cholesterol
- Presence of a non-pulmonary malignancy • Existence of ascites as a baseline condition enhances the risk of initial recurrence.
- The early removal of an intraperitoneal catheter (IPC) as a result of problems or malfunctions was shown to be associated with a higher frequency of recurrence.

Decreased hazard for recurrence: contralateral effusion

Thoracocentesis, implantation of an indwelling pleural catheter (IPC), chest tubes with chemical pleurodesis, and pleuroscopy with chemical pleurodesis are some of the therapy options. Patients with asymptomatic pleural effusions who are receiving chemotherapy do not need to be treated; instead, they may be managed by keeping an eye on them and checking for signs of progression. Patients experiencing lung collapse should preferably have an indwelling pleural catheter. When necessary, recurring thoracocentesis may be used to treat MPE in patients who are nearing the end of their lives. Since no technique has yet been shown to increase life expectancy in this situation, an intervention for the management of MPE will inevitably be palliative in character.

The therapy of malignant pleural effusion (MPE) necessitates a palliative strategy, since there is currently no evidence to support the use of pleural procedures in extending lifespan. A therapeutic thoracentesis often offers prompt alleviation in the majority of instances, assuming the absence of alternative factors contributing to dyspnea. Therapeutic thoracentesis may be performed repeatedly in patients with a sluggish rate of fluid re-accumulation, as well as in patients with a limited projected survival or poor performance status. It is recommended that patients with malignant pleural effusion (MPE) get personalized therapies based on their preferences, performance status, prognosis, and practical factors such as the lung's capacity to expand. These interventions should be definitive in nature. There are a variety of surgical and nonsurgical approaches that may be considered for care in different clinical settings. However, it is important to note that there is currently a lack of adequate data to provide clear guidance on the most appropriate approach. Both chemical pleurodesis, performed with intercostal drainage (ICD) or pleuroscopy, and indwelling pleural catheter (IPC) have comparable effects on patient-centered outcomes. However, patients treated

with IPC had shorter hospital stays. The use of talc slurry using intrapleural catheterization (IPC) is a novel and possibly appealing alternative for those without a non-expandable lung (NEL).

When other causes of dyspnea, including pulmonary embolism, are absent, a therapeutic thoracentesis usually provide rapid relief.9 Therapeutic thoracentesis may be performed again (as an outpatient procedure), particularly in patients with a low recurrence risk, those with a very short projected survival, or those with poor performance status.8 The least intrusive treatment for dyspnea is thoracocentesis, which is chosen for patients with advanced cancer and fewer than three months to live. Recurrence is anticipated, however it might take a few weeks and a second thoracocentesis can be done if necessary. Given the accumulated discomforts, hazards, and expenses associated with recurrent thoracentesis, a conclusive intervention should be made available to patients whose survival has been long predicted.Using tiny catheters (14–18 G), a pleural cavity is drained during a thoracentesis. Thoracentesis may be the best choice for extremely weak patients (ECOG 3-4), those with a low life expectancy, or those who are not suitable for pleurodesis or the insertion of an indwelling pleural catheter (IPC), despite the possibility that the procedure's results may only be temporary owing to the high likelihood of recurrence. (terra)

In the research conducted by David E. Ost et al., it was shown that only 24% of patients with MPE who had a recurrence within two weeks of the original thoracocentesis got treatment that was consistent with guidelines and underwent a final surgery, whereas 76% underwent a repeat thoracocentesis.

Repeat thoracentesis may result in additional pleural procedures, problems, ED visits, and days before to the treatment when the symptoms are becoming worse. Comparing thoracoscopic or chest tube pleurodesis to thoracentesis, fewer hospital days are linked with these procedures. Pleural adhesions may be more common in patients who have had many thoracentesis procedures. The amount of surgeries and days spent in the hospital are affected by survival time.

Only patients with a very low incidence of reaccumulation, an exceedingly short projected survival, or poor functioning status should realistically get repeated therapeutic thoracenteses. Given the overall danger, inconvenience, expense, and frequency of pleural operations, it should generally be avoided. These patients should be given definitive care, but if no reaccumulating is noted, as is occasionally the case in patients with chemo-sensitive cancers, definitive management may be postponed.

Although maintaining proper lung expansion and relieving dyspnea is the major goal of intermittent MPE drainage, spontaneous pleurodesis occurs in around 24-45% of patients, often within 7 weeks.

The outcome measures include

- Duration of hospital stay
- Symptom palliation and quality of life
- Fluid re-accumulation

Conclusion

We examine the possibility that recurring thoracentesis in patients with malignant pleural effusion (MPE) influences the long-term prognosis. According to the statistics, more than half of patients with recurrent MPE have a second thoracentesis before having a permanent operation. Thoracentesis has a shorter hospital stay than other conclusive procedures like thoracoscopic surgery or chest tube pleurodesis. The least intrusive treatment option that alleviates dyspnea is thoracocentesis, which is recommended for patients with advanced cancer whose expected survival is less than three months. Although recurrence is anticipated, it may take a few weeks, and a second thoracocentesis might be performed if desired. Although the main objective is to occasionally drain the MPE, spontaneous pleurodesis occurs in around 24-45% of all cases, often within 7 weeks. (Projective future) The tendency of repeat thoracentesis will reduce in favour of definitive therapies as understanding of the proper medical care of recurrent MPEs grows. The overall satisfaction, effectiveness, and long-term prognosis for patients with MPE will improve if we can include the final therapy in the least invasive treatment alternatives since thoracentesis is less invasive.

References

1. Clive AO, Jones HE, Bhatnagar R et al. Interventions for the management of malignant pleural effusions: a network meta-analysis. Cochrane Database Syst Rev 2016;5:CD010529.

2. Kulandaisamy PC, Kulandaisamy S, Kramer D, Mcgrath C. Malignant Pleural Effusions-A Review of Current Guidelines and Practices. J Clin Med. 2021 Nov 26;10(23):5535. doi: 10.3390/jcm10235535. PMID: 34884236; PMCID: PMC8658426.

3. Arora RD, Boster J. Malignant Pleural Effusion. [Updated 2022 Sep 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK574541/.

4. Jacobs B, Sheikh G, Youness HA, Keddissi JI, Abdo T. Diagnosis and Management of Malignant Pleural Effusion: A Decade in Review. Diagnostics (Basel). 2022 Apr 18;12(4):1016. doi: 10.3390/diagnostics12041016. PMID: 35454064; PMCID: PMC9030780.

5. Terra RM, Dela Vega AJM. Treatment of malignant pleural effusion. J Vis Surg. 2018 May 22; 4:110. doi: 10.21037/jovs.2018.05.02. PMID: 29963399; PMCID: PMC5994464.