



Editorial

Malignant pleural effusion management

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Malignant pleural effusion (MPE) is the second most common cause of pleural effusion, affecting 15% of cancer patients,¹ and its presence confirms advanced disease. Survival of cancer patients with MPE ranges from 3–12 months.² Most MPEs are symptomatic and usually present with dyspnea, chest pain, anorexia, weight loss, and significant loss of quality of life. Management of symptomatic MPE is palliative and should focus on relieving symptoms, mainly dyspnea. Management options include repeated therapeutic thoracentesis, chest drainage with chemical pleurodesis (CP), tunneled pleural catheter (TPC) placement, or surgery.

Therapeutic thoracentesis is recommended in patients with dyspnea and MPE occupying >50% of the hemithorax, followed by a definitive palliative intervention (CP or TPC). Repeated therapeutic thoracentesis should be reserved for patients with a life expectancy limited to a few days or weeks. However, the available evidence is still insufficient to determine which definitive palliative treatment is the best option for the initial management of MPEs, since studies to date confirm that both procedures are effective in controlling dyspnea.^{3,4} The choice may then depend on certain individual clinical factors (comorbidities, recurrence of effusion, presence of septa or trapped lung, tumor characteristics, type of cancer, or estimated survival)⁵ that should prompt us to evaluate other factors, such as hospital stay, the need for general anesthesia or repeat procedures, side effects, and final cost.

CP induces an inflammatory pleural response that binds the pleural layers, preventing fluid buildup. Results show that it improves dyspnea and survival,⁶ and reduces hospital stay and the need for future interventions.³ The chance of success increases if pH is <7.20 or effusion occupies >50% of the hemithorax.⁷ Issues that have not yet been sufficiently clarified are the appropriate sclerosing agent, the size of the drainage tubes, and the administration of non-steroidal anti-inflammatory drugs to control pain. To date, the most widely used agent is talc, administered either via the thoracoscope using an atomizer (talc poudrage), or via an intercostal tube in the form of a suspension (talc slurry), but neither technique has shown superiority over the other. In a recent study, the failure rates of pleurodesis at 90 days were 22% (36/161) and 24% (38/159) for poudrage and slurry, respectively (OR 0.91; 95% CI: 0.54–1.55; $p=0.74$).⁸ The British Thoracic Society states that both approaches have similar efficacy.² Moreover, the size of the drainage tube does not appear to influence the success rate of pleurodesis,⁹ although

smaller tubes (10–14F) are more comfortable for the patient.¹⁰ One of the advantages of pleurodesis is the greater likelihood of rapid resolution of pleural effusion with limited intervention over time. Nevertheless, this procedure is not recommended in the case of trapped lung^{11,12} or multiple septa, as it is only effective if the talc comes into contact with both pleural layers. The procedure is invasive and additional pleural interventions may be required.³

TPC consists of a fenestrated tube that is introduced into the pleural cavity and tunneled through the subcutaneous cell tissue; it terminates in a one-way valve that permits drainage when connected to a vacuum recipient, helping achieve control of the patient's symptoms. It has shown similar efficacy to talc pleurodesis,³ but requires fewer days of hospitalization, offers more advantages in patients with trapped lung, and is better tolerated by patients with a poor functional status. Pleurodesis is also achieved spontaneously in 46%–70% of patients with complete pulmonary reexpansion (the effect is greater if drainage is performed on a daily basis than only when symptoms appear).¹³ However, long-term drainage is required and the complication rate (mainly cellulitis) is high, but tolerance is generally good and significant morbidity is rare. TPCs appear to be more cost-effective in patients with limited survival (<3 months), while talc pleurodesis may be more cost-effective in patients with a longer life expectancy, although this observation has not yet been confirmed in clinical trials.

A recent study examined a combination of both techniques: CP via TPC. A TPC was placed in 154 patients with MPE and the fluid was drained on an outpatient basis. If there was no substantial trapped lung, patients were randomly assigned to receive talc or placebo via the TPC. The results showed that pleurodesis was achieved in 43% (30/69) of those receiving talc and in 23% (16/70) of those in the placebo group (HR 2.20; 95% CI: 1.23–3.92; $p=0.008$), with no adverse effects in either group.¹⁴ Using this combination, the tube could be removed earlier, with the corresponding reduction in drainage discomfort, possible mechanical failure, infection risks, and cost.

Finally, another novel alternative to managing recurrent MPE is to move pleural fluid into the urinary bladder using a pump system.¹⁵ Surgical pleurectomy has a limited role in the management of MPE and the potential benefits might not warrant the perioperative mortality and loss of quality of life.²

In short, current evidence suggests that both talc pleurodesis (in poudrage or slurry) and TPCs are effective in the management of symptomatic MPEs, so the choice will depend on factors such as the experience of the medical team, the patient's decision and

☆ Please cite this article as: Ferreiro L. Manejo del derrame pleural maligno. Arch Bronconeumol. 2020;57:7–8.

their functional status and life expectancy, the tumor type, and the existence of a trapped lung. In our view, the combination of both procedures (pleurodesis by TPC) is the most effective alternative, and one that takes advantage of the benefits of both methods (out-patient management and faster resolution of the effusion), while minimizing both the discomfort and the cost of this disease. New clinical trials are needed to respond to current controversies and provide more evidence on the effective and standardized management of this disease.

Authors contribution

All authors contributed in the same way to the conception, design, writing and final approval of the manuscript.

Conflict of interests

The authors state that they have no conflict of interests.

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19 April 2020