

large public hospitals. If, for this kind of surgery, we accept that center volume of activity has a greater impact than surgeon volume of activity, then it would be reasonable to suppose that good chest surgeons working in low-activity hospitals do not obtain the same results as when they work in large hospitals.

Summing up therefore, we agree with Dr Freixinet that this kind of study serves to question practices with a view to improving results. Chest surgeons and anesthetists need to work very closely together and can only benefit from sharing knowledge and doubts. Furthermore, scientific associations have an obligation to place scientific criteria before particular interests with a view to ensuring quality medical care.

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## Treatment of Catamenial Pneumothorax With Diaphragmatic Defects

### Tratamiento del neumotórax catamenial con defectos diafragmáticos

To the Editor:

Having read with care the article by Rombolá et al,<sup>1</sup> "Multiple Diaphragmatic Fenestration as the Only Thoracoscopic Finding in Recurrent Pneumothorax," we feel we need to clarify certain points in the light of our own experience:

1. The case described appears to be consistent with catamenial pneumothorax, which can occur during ovulation as well as during menstruation. Progression may also remain concealed, with pneumothoraces occurring during these hormonal events but only becoming apparent subsequently. This was the case with 5 of the 9 patients with catamenial pneumothorax treated in our hospital. According to the medical literature, a finding of diaphragmatic defects is highly suggestive of pneumothorax associated with hormonal cycles, and, more specifically, of catamenial pneumothorax as the most frequent clinical sign of thoracic endometriosis syndrome. In our opinion, therefore, it is inexcusable to suppress menstruation for 6 months or more following diagnosis and surgery (if performed)-whether because, as frequently happens, the disease is resolving very slowly or relapses occur. In 1 of the cases diagnosed in our hospital, the cause of the pneumothorax was probably hormone-based fertility treatment. The patient opted for conservative treatment, without surgery, but the pneumothorax recurred some months after recommencing the ovary-stimulating fertility treatment that was suspended on our advice. The administration of gonadotropic analogues is the most widely used hormone treatment, given its good response rate.<sup>2,3</sup>
2. The surgical treatment of choice is, as the authors have pointed out, video-assisted thoracic surgery. Nonetheless, we are of the opinion that successful treatment depends on open or endoscopic repair or excision of the diaphragmatic defects.

Reported in the literature is even a case of surgical repair based on using an artificial mesh made different materials.<sup>4</sup> Pleurodesis can be used as a complementary treatment, but in our opinion, consideration should be given to repairing the defects to avoid catamenial pneumothorax recurrence. In the last 15 months, our hospital has treated 2 patients with catamenial pneumothorax as a component of thoracic endometriosis syndrome by means of endoscopic resection of diaphragmatic defects through video-assisted thoracic surgery (Figure) and suppression of menstruation. Although follow-up has been brief, no relapse has occurred, and in 1 of the patients, the presence of endometrial cells in the diaphragm was demonstrated. We treated another 7 previous cases in our hospital with various kinds of surgery, including the fitting of a diaphragmatic prosthesis, either when resolution was slow or when relapses occurred after treatment limited to chemical pleurodesis.

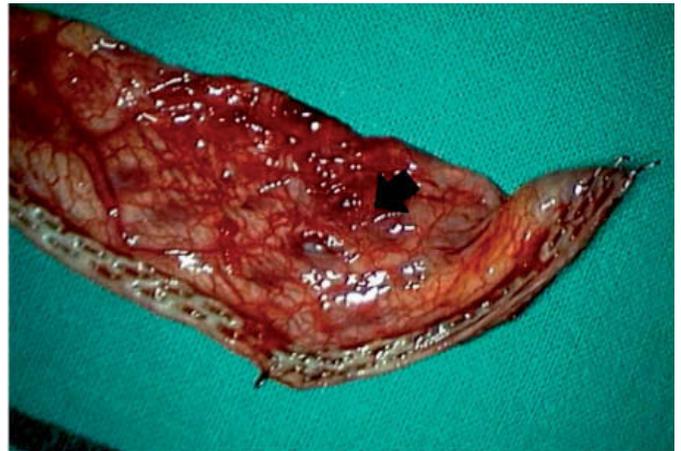


Figure. Image of a specimen of excised diaphragm, showing a number of orifices (arrow) at different stages of development, and also a line of endoscopic repair staples.

3. In cases of suspected catamenial pneumothorax, it is important to perform a thorough examination of the chest cavity and lung parenchyma to check for possible endometriosis and diaphragmatic defects. It is also advisable to perform a lung biopsy. The studies included in the references provided by Rombolá et al<sup>1</sup> include one that recommends the treatment described above.<sup>5</sup> We are of the opinion that hormone treatment for these authors' patient is essential; furthermore, in the event of a relapse, a priority consideration should be surgery to repair the diaphragm.

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## Authors' Reply to "Treatment of Catamenial Pneumothorax With Diaphragmatic Defects"

### Respuesta de los autores a "Tratamiento del neumotórax catamenial con defectos diafragmático"

To the Editor:

We have read with care the letter in regard to catamenial pneumothorax from Sánchez-Lorente et al, written in response to our own letter.<sup>1</sup> We thank these authors for their interest and congratulate them on their experience with catamenial pneumothorax. Nonetheless, we wish to make some clarifications based on the medical literature:

1. Most authors (including those cited by Sánchez-Lorente et al) define catamenial pneumothorax as recurring pneumothorax that occurs during the period comprising the day before and the 3 days after menstruation.<sup>1-3</sup> The word *catamenial* comes from Greek and means *monthly*.<sup>3</sup> In medicine the term is used to describe any process associated with menstruation. The inclusion of ovulation (which is very difficult to determine a posteriori) in the definition of catamenial pneumothorax used by Sánchez-Lorente et al would imply that practically all cases of pneumothorax in women of child-bearing age would fall into this category. It is indeed true that small pneumothoraces may go undetected for some days, but this is unlikely if the pneumothorax is significant.
2. Although the physiopathology of catamenial pneumothorax is not well understood, it is unlikely that a single mechanism is responsible for all cases of the disease.<sup>1-3</sup> Only 22% to 37% of cases are associated with endometriosis (histologically demonstrated), and 19% to 33% with fenestrations or diaphragmatic nodules.<sup>1,3</sup> The following mechanisms have been suggested: a) spontaneous rupture of blebs, b) rupture of alveoli favored by the bronchoconstrictor effect of certain prostaglandins, c) necrosis-desquamation of endometriotic foci in the visceral pleura, and d) air from the genitalia entering the diaphragm via congenital or

acquired openings.<sup>2,3</sup> Air entry in the vagina—during sexual intercourse or intense exercise—is facilitated by reduced cervical mucous viscosity, and especially during menstruation.<sup>2,3</sup> This particular mechanism is well documented for cases of spontaneous pneumoperitoneum in which, obviously, there is no diaphragmatic abnormality. If fenestrations exist, they are likely to be associated with a pneumothorax.<sup>4</sup>

3. The origin of fenestrations is uncertain.<sup>2,5</sup> They may be due to congenital lesions in the diaphragm or may be secondary to endometriosis.<sup>2</sup> Although pleural endometriosis most often occurs adjacent to the diaphragmatic pleura, some authors have reported fenestrations that are not associated with catamenial pneumothorax or thoracic endometriosis.<sup>2,5</sup>
4. Finally, we agree with the treatment proposed by Sánchez-Lorente et al for catamenial pneumothorax and pleural endometriosis. Nonetheless, 2 doubts remain. Should we manage as thoracic endometriosis cases such as that described by us in our previous letter—with 3 pneumothorax episodes unrelated in any way to the menstrual cycle and occurring outside the menstrual period (noncatamenial pneumothorax), with pleural and lung biopsies ruling out endometriosis (the patient was operated on, coincidentally, on the first day of menstruation, after 5 days of simple pleural drainage), without signs or symptoms of pelvic or peritoneal endometriosis, and with diaphragmatic fenestrations as the only thoracoscopic finding? And if pneumothorax recurrence can be avoided with effective pleurodesis, can resection of the entire multifenestrated right phrenic region be justified? These questions have not as yet been properly addressed—with suitable statistical data—in the medical literature.

Talc pleurodesis performed during thoracoscopy proved effective for our patient, who remains asymptomatic and who has had no recurrence of pneumothorax in the 2 years that have elapsed since treatment. As recently as 2 months ago, she was treated for anemia-inducing hypermenorrhea by means of a laparoscopic intramural uterine myomectomy; no evidence of pelvic endometriosis was found. The fact that the laparotomy did