References

1. Vilà E, García Guasch R, Sabaté S, Lucas M, Canet J y Grupo ANESCAT. Actividad anestésica en cirugía torácica en Cataluña. Resultados de una encuesta realizada durante 2003. Arch Bronconeumol. 2008;44:586-90.
2. Varela G, Molins L, Astudillo J, Borro JM, Canalís E, Freixinet J, et al. Experiencia piloto de benchmarking en cirugía torácica: comparación de la casuística e indicadores de calidad en resección pulmonar. Arch Bronconeumol. 2006;42:267-72.
3. Freixinet J, Juliá-Serdá G, Rodríguez P, Santana N, Rodríguez de Castro F, Fiuza MD, et al. Hospital volume: operative morbidity, mortality and survival in thoracotomy for lung cancer. A Spanish multicenter study if 2994 cases. Eur J Cardiothorac Surg. 2006;29:20-5.
4. Chowdhury MM, Dagash H, Pierro A. A systematic review of the impact of volume of surgery and specialization on patient outcome. Br J Surg. 2007;94:145-61.
5. Laroche C, Wells F, Coulden R, Stewart S, Goddaard M, Lowry E, et al. Improving surgical resection rate in lung cancer. Thorax. 1998;53:445-9.
6. Freixinet J, Caballero-Hidalgo A, González López-Valcárcel B, García Fernández JL, Crespo Royo I, Salvatierra A, et al. Análisis de la situación actual y previsión de futuro de la especialidad de Cirugía Torácica. Arch Bronconeumol. 2009 (In press).

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Authors' Reply to "Comments on 'Anesthesia in Thoracic Surgery in Catalonia. Results of a Survey Carried Out in 2003'"

Respuesta de los autores a "Comentarios a propósito del artículo 'Actividad anestésica en cirugía torácica en Cataluña. Resultados de una encuesta realizada durante 2003'"

To the Editor:

We thank Dr Jorge Freixinet for his letter[1] regarding our article on anesthesia in thoracic surgery in Catalonia,[2] which gives us further opportunity to comment on both our own article and on the article recently published by the Bronchogenic Carcinoma Cooperative Group of the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR),[3] of which Dr Freixinet is a member. We congratulate this group for their research into the results obtained by thoracic surgery units in Spain.

We are of the opinion that the points made by Dr Freixinet do not differ substantially from those made in the discussion section of our article, but are simply different perspectives on the same question, namely, what minimum volume of activity for complex procedures by centers and specialists will ensure the best morbility and mortality results? This question has generated a great deal of medical literature in recent years.[4]

The study performed by ANESCAT (Catalan Society of Anesthesiology, Critical Care, and Pain Therapy) was a broad-based survey conducted to obtain detailed information on anesthesia activity in Catalonia in 2003[5] and aimed ultimately at facilitating anesthesiology planning. Of the 23 136 anesthesias reflected in the survey, 171 referred to thoracic surgery and, of these, 42 (24.6%) referred to lung resection.[5] Extrapolating to Catalonia, therefore, 5000 anesthesias were performed, 1000 of which were associated with lung resection. Thus, anesthesia in thoracic surgery (the specialty with least activity) represented 0.7% of all anesthesias and 0.9% of surgical anesthesias.[5] Although the number is small, the extrapolation to Catalonia can be considered to be reliable, given that the sampling methodology was based on 14 randomly selected days in 2003 and that 100% of all the heath centers practicing anesthesia participated in the survey. Nonetheless, extrapolation to centers implies a wide margin of error, given that the level of activity in some centers is low.

Anesthetists for thoracic surgery, like those for heart surgery, need very special training. Anesthesia as performed in thoracic surgery–which can be considered a subspecialty of anesthesiology–is characterized by complex diseases, highly specialist knowledge of anesthesia techniques, blurred boundaries between anesthesia and surgery, and high perioperative morbility and mortality risks. Outcomes are very much influenced by anesthetist skills in terms of airway access, single-lung ventilation, hemodynamics, analgesia, and postoperative complications. Chest surgeons are very aware of the importance of team work with anesthetists and of mutual trust in resolving intraoperative, surgical, and anesthesia problems. Thus, although thoracic surgery may represent but a small part of the workload of an anesthesiology department, it requires good organization and planning.

The study by the SEPAR Bronchogenic Carcinoma Cooperative Group demonstrated that, for Spain, there were no differences in postoperative morbidity and mortality for 19 thoracic surgery units classified in 3 groups according to the number of lung resections performed.[3] This result appears to contradict findings in other studies and meta-analyses.[4,6] Comparing lung resection with other surgical procedures, it was observed that a center's volume of activity had a greater bearing on mortality than the surgeon's level of activity.[4,6] This is probably due to the fact that although this kind of surgery is very regulated, the high risk of postoperative morbility means that hospital infrastructure must be adequate. Without detracting from the SEPAR study, we need to bear in mind that the 19 thoracic surgery units performed an annual average of 50 lung resections, with 16 units performing 30 or more resections.[3] In accordance with the cited studies, most of the 19 centers could be considered to have had a high volume of activity, and this explains why the study found no difference between centers. Since the study only included 1 low-activity center (with fewer than 20 cases annually[6]), it cannot respond to the question regarding the impact of a center's volume of activity.

Of the 131 centers that participated in the ANESCAT study,[5] 27 centers performed thoracic surgery-related anesthesia, and 14 centers–5 of which were private (data not provided in our article)–performed lung resection. Given the margin of error for our sample, it is very likely that 8 of these 14 centers perform fewer than 20 lung resections annually; of the 13 other centers performing thoracic surgery, we cannot rule out the possibility that they may have performed lung resections, since any center performing fewer than 1 operation a month was possibly not picked up by our survey. As Dr Freixinet has pointed out, in Catalonia the dispersion of centers is explained by the weight of private surgical activity, which is generally performed by the same chest surgeons employed in the

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.

References

1. Freixinet J. Comentarios a propósito del artículo "Actividad anestésica en cirugía torácica en Cataluña. Resultados de una encuesta realizada en 2003". Arch Bronconeumol. 2009;45:412-3.
2. Vilà E, García-Guasch R, Sabaté S, Lucas M, Canet J. Actividad anestésica en cirugía torácica en Cataluña. Resultados de una encuesta realizada durante 2003. Arch Bronconeumol. 2008;44:582-6.
3. Freixinet J, Julià-Serdà G, Rodríguez PM, Santana NB, Rodríguez de Castro F, Fiuza MD, et al. Hospital volume: operative morbidity, mortality and survival in thoracotomy for lung cancer. A Spanish multicenter study of 2994 cases. Eur J Cardio-Thorac Surg. 2006;29:20-5.
4. Birkmeyer JD, Stukel T, Siewers AE, Goodney PP, Wennberg DE, Lucas FL. Surgeon volume and operative mortality in the United States. N Eng J Med. 2002;349:2117-27.
5. Sabaté S, Canet J, Gomar C, Castillo J, Villalonga A. Cross-sectional Survey of anaesthetic practices in Catalonia, Spain. Ann Fr Anesth Reanim. 2008;27:371-83.
6. Chowdhury MM, Dagash H, Pierro A. A systematic review of the impact of volume of surgery and specialization on patient outcome. Br J Surg. 2007;94:145-6.

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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,[1] "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.[2,3]
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.[4] 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.

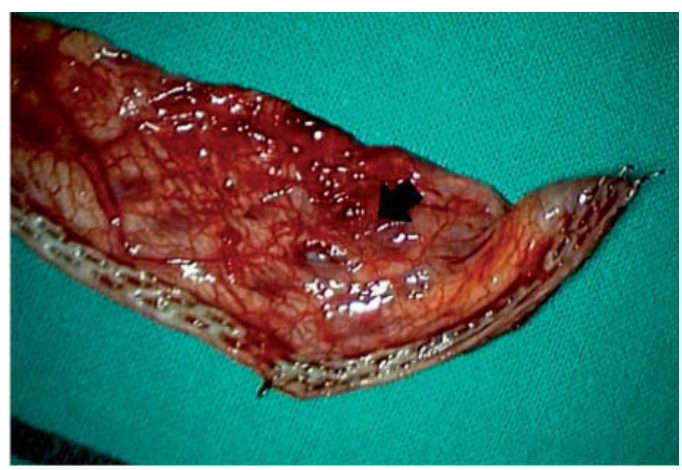

Figure. Image of a specimen of excised diaphragm, showing a number of orifices (arrow) at different stages of development, and also a line of endoscopic repair staples.