



## CIRUGÍA ESPAÑOLA

[www.elsevier.es/cirugia](http://www.elsevier.es/cirugia)


## Special article

# EHS guidelines for inguinal hernia repair. The reality of the current situation in Spain. A proposal to standardize its implementation during surgical training<sup>☆</sup>

 José Antonio Pereira Rodríguez,<sup>a,b,\*</sup> Manuel López Cano<sup>c,d</sup>
<sup>a</sup> Servicio de Cirugía General y Digestiva, Parc de Salut Mar, Hospital del Mar, Barcelona, Spain

<sup>b</sup> Departament de Medicina i Ciències de la Salut, Universitat Pompeu Fabra, Barcelona, Spain

<sup>c</sup> Departament de Cirurgia, Universitat Autònoma de Barcelona, Barcelona, Spain

<sup>d</sup> Servicio de Cirugía General y Digestiva, Hospital Vall d'Hebron, Barcelona, Spain

## ARTICLE INFO

## Article history:

Received 22 December 2022

Accepted 21 January 2023

Available online 10 November 2023

## Keywords:

Inguinal hernia repair

Laparoscopy

Surgical training

Minimally invasive surgery

## ABSTRACT

Laparoscopic inguinal hernia repairs are underused in our country and do not fulfil the recommendations of the European Hernia Society (EHS) guidelines. Thus, it is essential to establish measures that increase its use. We propose that the Spanish Association of Surgeons (AEC) promote these actions and that they should be incorporated into the specialty program.

The proposed measures include Standardization of learning; reinforce anatomical knowledge; regulated practices with simulators; promote the use of the open posterior approach; rotations through centers of excellence; accreditation of specialized units and use a registry of activity as quality control.

© 2023 AEC. Published by Elsevier España, S.L.U. All rights reserved.

## Guías de la EHS para el tratamiento de la hernia inguinal. La realidad de su uso en España. Una propuesta para estandarizar su implementación durante la residencia de cirugía general

## RESUMEN

Las reparaciones de hernia inguinal por vía laparoscópica están infrautilizadas en nuestro país y no se adecuan a las recomendaciones de las guías de la European Hernia Society (EHS). Es necesario establecer medidas regladas que incrementen su uso. Proponemos que la Asociación Española de Cirujanos (AEC) promueva dichas acciones y que se incorporen al programa de la especialidad.

## Palabras clave:

Hernia inguinal

Laparoscopia

Formación en cirugía

Cirugía mínimamente invasiva

<sup>☆</sup> Please cite this article as: Pereira Rodríguez JA, López Cano M. Guías de la EHS para el tratamiento de la hernia inguinal. La realidad de su uso en España. Una propuesta para estandarizar su implementación durante la residencia de cirugía general. Cir Esp. 2023. <https://doi.org/10.1016/j.ciresp.2023.01.007>

\* Corresponding author.

E-mail address: [jpereira@psmar.cat](mailto:jpereira@psmar.cat) (J. A. Pereira Rodríguez).

<http://dx.doi.org/10.1016/j.cireng.2023.01.008>

2173-5077/© 2023 AEC. Published by Elsevier España, S.L.U. All rights reserved.

Las medidas propuestas incluyen: Estandarización del aprendizaje; reforzar el conocimiento anatómico; prácticas regladas con simuladores; promover el uso de la vía posterior abierta; rotaciones por centros de excelencia; acreditación de unidades especializadas y usar un registro de actividad como control de calidad.

© 2023 AEC. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

## Introduction

Inguinal hernia repair is one of the most frequently performed operations in general surgery. According to data from the Ministry of Health, around 80,000 inguinal hernias are operated on annually in Spain.<sup>1</sup> According to data from the Spanish National Health System (SNS),<sup>2</sup> in 2018 it was the eighth most commonly performed surgical procedure in Spain, and the fourth most frequently performed in men.

The guidelines for inguinal hernia repair<sup>3</sup> state that laparo-endoscopic techniques, by experienced surgeons, do not take longer, do not have more complications, and have less acute and chronic pain than the Lichtenstein technique. Moreover, recovery is quicker, which equalises costs. These guidelines advise using a laparo-endoscopic technique in male patients with unilateral primary hernia, in bilateral, recurrent inguinal hernias, and in women, if the surgeon has sufficient expertise and means.

The inguinal hernia surgery situation in Spain does not conform to the recommendations of international guidelines for the treatment of inguinal hernia. In a recent study<sup>1</sup> analysing all inguinal hernia repairs between 2016 and 2018 in patients over 14 years of age, only 5.7% of all procedures were performed laparoscopically (LPS). If the data are analysed according to the recommendations of the European Hernia Society (EHS), 4.31% of unilateral hernias, 4.9% of hernias in women, 17.9% of bilateral hernias, and 8.0% of recurrent hernias were treated with LPS. These figures demonstrate the poor implementation of minimally invasive techniques to treat this pathology.

Other interesting data from this study are the higher frequency of LPS use in private healthcare (9.80% vs. 4.31%;  $P < .001$ ), in centres with less than 200 beds (7.6% vs. 4.2%;  $P = .001$ ), and a lower frequency of outpatient procedures (30.05% vs. 46.97%;  $P < .001$ ). On the other hand, a significant percentage of patients undergoing LPS required unplanned hospitalisation (9.85% vs. 6.46%;  $P < .001$ ) and regional inequalities have been highlighted in terms of possible access to minimally invasive repair, which indirectly also flags up regional differences in specialist training processes.

In a 2014 survey,<sup>4</sup> only 6% of respondents routinely performed hernia repair laparoscopically, compared to 59% for colorectal surgery, and 79% for cholecystectomy for acute cholecystitis. The authors noted at the time that these figures were below those published in the international community.

In a posthumous editorial in *CIRUGÍA ESPAÑOLA*,<sup>5</sup> X. Feliu warned about this underutilisation and advised three actions: promotion of training and supervision; increasing training possibilities; and the creation of specialist abdominal wall units.

In view of the results of the most recent study,<sup>1</sup> the situation has changed little, especially when compared to the rate of LPS in other European countries (UK, 40%; Denmark, 16%; Germany, 52%–66%), and indicates similar causes and measures, including the use of simulators.

All these data show that the situation of LPS inguinal hernia repair in Spain has undergone little change in its use and in the actions to increase it as per the EHS guidelines. In view of this situation, a common strategy seems necessary to improve the implementation of laparoscopic inguinal hernia surgery in our country.

## Proposal to standardise implementation

Our proposal is to address elements of training, clinical implementation, and outcome monitoring. Economic aspects (although basic to any training programme proposal) are not considered here. This manuscript was written exclusively from a clinical-pedagogical perspective.

The objectives of this initiative should be to increase the number of elective LPS hernia repairs over a five-year period to European standards and to bring them in line with EHS guidelines.

### Standardising learning

In our opinion, the basic step in this process is the standardisation of learning at the national level, both during residency training and for specialist surgeons who routinely perform inguinal hernia repair and have not been routinely introduced to laparoscopic repair.

It is essential to design a series of organised actions for both trainee and specialist surgeons aimed at improving anatomical and technical knowledge to facilitate the safe implementation of all types of inguinal hernia repair techniques. These actions should be mandatory during the training period and for surgeons working in specialist abdominal wall surgery units.

The Spanish Association of Surgeons (AEC) and its abdominal wall section should monitor compliance with these actions and clinical outcomes.

The AEC and its abdominal wall section have designed several activities in recent years that are probably insufficient. The continuing success of the inguinal hernia course that is organised every year (initially at Getafe Hospital, now travelling to other Spanish hospitals) demonstrates the great interest in this pathology. One of the most interesting activities of this course, cadaver dissection, has not been included in the programme for some years, and although videos of anatomical preparations of the inguinal area

(anterior and posterior) have been reintroduced in the 2022 edition of the course, visual immersion in anatomical dissection alone may be insufficient. In our opinion, being able to practice the techniques learned in a controlled and safe environment for patients is essential to gain confidence in any surgical technique, and we consider it one of the cornerstones of the proposed change.

Furthermore, it is the only activity focused on inguinal hernia organised by the AEC, and is usually undertaken on a mandatory basis during the first years of residency, and therefore it is unlikely that residents will undertake any other formal educational activity during their training period, except for individual initiatives or belonging to one of the few centres where these procedures are performed more frequently.

### **Reinforcement of human anatomy learning**

The first action should be to achieve mastery of the anatomy of the groin region in its posterior view. This is difficult during training because, like laparoscopic surgery, the open posterior approach is not very common in hospitals in our country.

Anatomical dissection helps acquire the necessary skills for this technique, in a relaxed environment and without risk of complications. In addition, new embalming methods allow these practices to be conducted with the same equipment as an *in vivo* LPS.

Ideally, this activity should be included as a compulsory part of the Ministry's residency training programme and financed by the Ministry through agreements with the human anatomy units of the faculties of medicine.

If this is not possible, the AEC should include in its programme of activities regular training and certification courses for cadaveric laparoscopic techniques.

These activities should be held at least twice during the residency period in the first two years. An excellent opportunity for this would be to re-incorporate them into the inguinal hernia courses already organised by the AEC's abdominal wall section.

Practice sessions should be regulated and evaluated in terms of competency, to obtain certification accrediting their completion so that they can be applied in the clinic.

These same activities should be open to specialist surgeons who routinely perform a significant number of inguinal hernia repairs and to all members with an interest in abdominal wall surgery who do not routinely use the laparoscopic route.

### **Practice sessions with simulators**

Technological advances have made it possible to design simulation models of the inguinal region which, with minimal and affordable equipment, enable practising the endoscopic surgical techniques for the treatment of inguinal hernia, especially the transabdominal preperitoneal technique (TAPP).<sup>6-8</sup> Some European societies organise courses using these models with good results.

In our opinion, general surgery departments accredited to teach the specialty should have these simulators and regularly schedule supervised and assessed training sessions.

These training sessions should be held during the first two years of residency at least every four months, and should be

mandatory to enable residents to start performing laparoscopic repairs.

In this sense, general surgery services with specialist abdominal wall units should lead these activities at provincial or autonomous region level, following guidelines designed, coordinated, and supervised by the AEC and its abdominal wall section.

### **Posterior open techniques**

Performing posterior open repair techniques provides an excellent opportunity to become familiar with the posterior view of the inguinal region in the operating theatre. These techniques are underutilised, with few exceptions, and have proven safe and effective in both elective and emergency repairs.

Abdominal wall surgery units should increase their use, which would benefit both resident training and specialist expertise in the knowledge of the posterior approach. In our opinion, this section is key to ensuring that trainees are introduced to the laparoscopic approach with the confidence that comes from a detailed knowledge of the anatomy of the posterior approach.

### **Rotation in centres of excellence**

Studies have shown that there are certain areas of Spain where a greater number of endoscopic approaches to inguinal hernia are performed. A task for the AEC is to identify these centres and accredit them so that residents and specialists from other hospitals can complete a rotation in which they can improve their training in minimally invasive abdominal wall surgery techniques.

This would be the last step towards certification in performing these techniques. A two-week rotation would be sufficient for this purpose for surgeons who have already accredited for the previous steps.

### **Accreditation of abdominal wall surgery units**

The accreditation procedures of specialist units promoted by the AEC are a unique opportunity to implement most of these proposed actions.

### **Registration of activity**

It is crucial to achieve these changes without any danger to patients and without disrupting hospitals' clinical activity. The AEC has a Registry of Incisional Hernia Surgery (EVEREG)<sup>9</sup> with a line dedicated solely to recording inguinal hernia procedures.

Recording cases, their outcomes, and auditing outcomes should be mandatory for all centres involved in this change.

Analysis of the registry data would achieve two objectives: to check the increase in activity and to check whether this increase induces changes in the outcomes of the procedure.

Periodic analysis of the data would be essential to introduce improvement measures or correct processes that may alter patient outcomes.

## Conclusion

Laparoscopic inguinal hernia repair according to EHS guidelines is underutilised in our country. Therefore, actions are necessary and should take place both at the level of scientific societies and in the speciality programme.

Standardisation of training is essential to increase the use of minimally invasive surgery for these procedures. The main focus is training in the surgical anatomy of the posterior inguinal region, and therefore teaching proposals should be implemented that, by familiarising surgeons with this approach, facilitate the increase of posterior repair techniques (open and laparoscopic) in our hospitals.

In our opinion, the AEC should lead this change by promoting these training actions, the accreditation of centres, and the supervision of the activity and its quality.

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## Conflict of interests

The authors have no conflict of interests to declare.

## REFERENCES

- Guillaumes S, Hoyuela C, Hidalgo NJ, Juvany M, Bachero I, Ardid J, et al. Inguinal hernia repair in Spain. A population-based study of 263,283 patients: factors associated with the choice of laparoscopic approach. *Hernia*. 2021;25:1345–54. <http://dx.doi.org/10.1007/s10029-021-02402-y>. PMID: 33837883.
- Ministerio de Sanidad. Altas, estancia media (días) y coste medio (€) de los procesos obstétricos y quirúrgicos (1) más frecuentes de hospitalización Hospitales de Agudos. SNS. 2018 [accessed 6 Feb 2023]. Available from: [https://www.sanidad.gob.es/estadEstudios/estadisticas/docs/CMBD/INFORME\\_COSTES QUIRURGICOS\\_HOSPITALES\\_SNS\\_2018.pdf](https://www.sanidad.gob.es/estadEstudios/estadisticas/docs/CMBD/INFORME_COSTES QUIRURGICOS_HOSPITALES_SNS_2018.pdf).
- HerniaSurge Group. International guidelines for groin hernia management. *Hernia*. 2018;22:1–165. <http://dx.doi.org/10.1007/s10029-017-1668-x>. PMID: 29330835; PMCID: PMC5809582.
- Moreno-Sanz C, Tenías-Burillo JM, Morales-Conde S, Balague-Ponz C, Díaz-Luis H, Enriquez-Valens P, et al. 25 años de cirugía laparoscópica en España [25 years of laparoscopic surgery in Spain]. *Cir Esp*. 2014;92:232–9. <http://dx.doi.org/10.1016/j.ciresp.2013.11.007>. PMID: 24447871.
- Feliu Palà X. Laparoscopic surgery of the abdominal wall: why has it not been implemented like other laparoscopic procedures? *Cir Esp*. 2015;93:65–7. <http://dx.doi.org/10.1016/j.ciresp.2014.07.007>. PMID: 25443153.
- Ivakhov G, Kolygin A, Titkova S, Anurov M, Sazhin A. Development and evaluation of a novel simulation model for transabdominal preperitoneal (TAPP) inguinal hernia repair. *Hernia*. 2020;24:159–66. <http://dx.doi.org/10.1007/s10029-019-02032-5>. PMID: 31429026.
- Nishihara Y, Isobe Y, Kitagawa Y. Validation of newly developed physical laparoscopy simulator in transabdominal preperitoneal (TAPP) inguinal hernia repair. *Surg Endosc*. 2017;31:5429–35. <http://dx.doi.org/10.1007/s00464-017-5614-x>. PMID: 28593409.
- Sadava EE, Novitsky YW. Simulation in hernia surgery: where do we stand? *J Laparoendosc Adv Surg Tech A*. 2021;31:551–5. <http://dx.doi.org/10.1089/lap.2021.0081>. PMID: 33691482.
- Pereira JA, López-Cano M, Hernández-Granados P, Feliu X, en representación del grupo EVEREG. Initial results of the National Registry of Incisional Hernia. *Cir Esp*. 2016;94:595–602. <http://dx.doi.org/10.1016/j.ciresp.2016.09.008>. PMID: 27884387.