



Original article

Evaluation of the aesthetic results perceived by patients after 3-port laparoscopic appendectomy

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A B S T R A C T

Introduction: The aesthetic result has lately been used in General Surgery as an argument for the development of new approaches. On numerous occasions attempts have been made to evaluate the perception that the patients themselves have after their operation by whatever approach, with the aim of finding where we differ and if there is a real option for improvement.

The objective of this study was to analyse, using a simple questionnaire, the assessment of the aesthetic results as perceived by patients after appendectomy, and to attempt to determine what are the variables involved in an aspect so subjective as this.

Patients and method: The variables collected were: age, sex, time since operation, infection of surgical wound, and presence of a drainage, as well as the responses on the aesthetic result of 70 patients who had a 3-port laparoscopic appendectomy.

Results: Infection of the surgical wound, as well as the age of the patients and the time since the operation determined statistically significant differences in their opinions as regards the number, size and overall aesthetic result of the laparoscopic appendectomy. The median overall satisfaction of the aesthetic result was 9 on a scale from 0 to 10.

Conclusions: The assessment of the aesthetic result by patients after a 3-port laparoscopic appendectomy is good and is difficult to improve. It is recommended to prevent infection of the three ports after the intervention to obtain better results.

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Valoración del resultado estético percibido por los pacientes apendicectomizados vía laparoscópica mediante tres incisiones

R E S U M E N

Introducción: El resultado estético se ha empleado últimamente en Cirugía General como argumento para el desarrollo de nuevos abordajes pero en contadas ocasiones se ha intentado valorar la percepción que los propios pacientes tienen al respecto, una vez intervenidos de una u otra manera, con el fin de saber desde dónde partimos y si existe opción real de mejora.

Palabras clave:

Cirugía laparoscópica

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El objetivo de este trabajo es analizar mediante un sencillo cuestionario la valoración del resultado estético percibido por los pacientes apendicectomizados vía laparoscópica e intentar averiguar qué variables intervienen en un aspecto tan subjetivo como éste.

Pacientes y método: Han sido recogidos la edad, sexo, tiempo desde la intervención, infección de herida quirúrgica y presencia de drenaje así como las respuestas sobre resultado estético de 70 pacientes apendicectomizados vía laparoscópica mediante tres puertas de entrada.

Resultados: La infección de la herida quirúrgica así como la edad de los pacientes y el tiempo transcurrido desde la operación determinaron diferencias estadísticamente significativas en la opinión de los mismos respecto al número, tamaño y resultado estético global de la apendicectomía laparoscópica siendo la mediana del grado de satisfacción del resultado estético global de 9, en una escala de 0 a 10.

Conclusiones: La valoración del resultado estético por parte de los pacientes apendicectomizados vía laparoscópica mediante tres incisiones es buena y difícilmente mejorable. Evitar la infección de las puertas de entrada así como analizar el resultado estético al menos seis meses tras la intervención es recomendable para obtener mejores resultados.

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Introduction

Patient satisfaction after a surgical procedure can vary significantly and depends on numerous factors. Most of the diseases that we deal with seriously affect patients' lives, meaning that the outcome is assessed by analysing parameters such as morbidity and survival. However, society increasingly insists on achieving other *a priori* secondary objectives, which could be important when concerning benign pains. One patient objective is scar appearance, size, number and visibility, produced as a result of the surgical procedure. In this study we analysed patients' perception of the aesthetic result following a 3-port laparoscopic appendectomy. The aim of the study was to understand which factors influence this matter, providing a standard that can be compared against other approaches in the future.

Patients and method

During 2008 and 2009, 395 patients were surgically intervened in the *Hospital Universitario Virgen de la Arrixaca*, having been diagnosed with acute appendicitis. The study group included patients over 15 years of age, who underwent three-incision laparoscopy. We excluded any patient that was subsequently intervened on for eventration in any of the access ports. We analysed patient satisfaction with regard to cosmetic result after an appendectomy, observing overall satisfaction and depending on age and sex. Group I included patients between 15 and 40 years old and Group II included those over 40 years. We also divided patients into three groups depending on how long ago they had received their operation, so as to evaluate whether time influenced the degree of scarring and the aesthetic result: Group A: patients intervened during the 6 months before; Group B: patients operated between 6 months and 1 year before; and Group C those operated on over more than 1 year before.

To perform the surgical procedure, we inserted an 11 mm-trocar for the optic at umbilical level, a 5 mm-trocar in the right hypochondrium and a 12 mm one in the left iliac fossa. To perform the appendectomy, we made an opening in the meso-appendix at the aforementioned level to insert one of the endoscopic linear stapler's jaws. We then transected the base using this instrument. The appendix artery was ligatured with an Endoloop®, electrocoagulation or metal clips. We extracted the appendix through the left iliac fossa opening using a sterile bag or an Endocatch®, and stapled the skin. If the surgeon deemed it appropriate for the disease's progress, a drainage tube was left in the right hypochondrium opening.

We used clinical records and conducted a telephone questionnaire to collect data regarding patients' age and sex, time since the intervention, rate of infection in surgical wounds and whether a drainage tube had been inserted. We also asked patients about aspects related to the aesthetic results as shown in the short questionnaire present in Table. We used the software SPSS 17.0 for Windows for the study's descriptive statistics and probability calculation (SPSS Inc., Chicago, IL, USA).

Results

Seventy patients completed the telephone questionnaire (35 women and 35 men) being an average of 38 years old (age range 15-89). On a scale of 0-10, the median and range for the level of patient satisfaction concerning incision size and overall aesthetic results was 9 (5-10), while it was 8 (4-9) for the number of scars. (Figure). There are not any statistically significant differences between sexes for the responses concerning overall aesthetics. When the patients were separated into age groups, we observed that younger patients gave a poorer evaluation (group I: n=39) compared to older and elderly patients (group II: n=31) with $P<0.001$ for the number-length of scars and concerning the overall

Table – Questionnaire to assess the aesthetic result perceived by patients following a 3-port laparoscopic appendectomy

- Are you happy with the number of scars that you hav?										
VERY UNHAPPY										
0	1	2	3	4	5	6	7	8	9	VERY HAPPY
- Are you happy with the length of scars that you have?										
VERY UNHAPPY										
0	1	2	3	4	5	6	7	8	9	VERY HAPPY
- How would you describe the overall aesthetic result?										
AWFUL										
0	1	2	3	4	5	6	7	8	9	EXCELLENT
- From an aesthetic point of view, would you recommend this operation to a friend or family member that has to have their appendix removed?										
YES	NO									
- Do you think that the aesthetic result of an appendectomy is important?										
YES	NO									
- Do you think that you would have preferred your appendix to be removed from one single opening in the navel?										
YES	NO	INDIFFERENT								

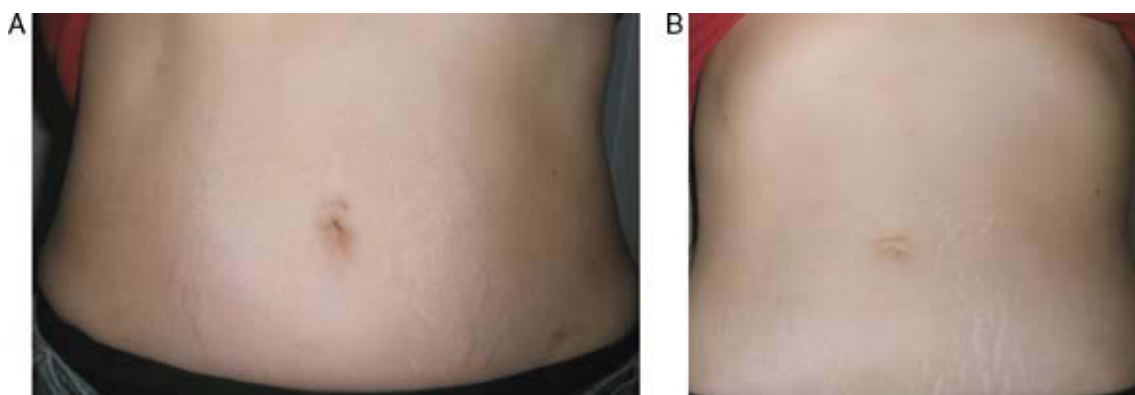


Figure 1 – Aesthetic results: A) standing position and B) supine position, 8 months after the laparoscopic appendectomy. The 63-year old patient gave the following score: number (8), size (9) and overall aesthetic result (9).

aesthetics. Seven (10%) patients had infection in the surgical wound and nine had drainage (13%). Patients with wound infection gave a lower score for overall aesthetics ($P < .005$), but this was not the case for patients with drainage. In the same sense, if we were to analyse the responses in accordance with time since the surgical intervention had been performed, we can see that the score clearly increases after six months. There were significant differences between Group A ($n=20$) compared with Group B ($n=25$) ($P < .025$, $.035$, $.05$) and C ($n=25$) ($P < .003$, $.017$, $.018$) for the first three questions from the questionnaire.

Discussion

This paper represents an attempt to assess the level of patient satisfaction with regards the cosmetic result following a

conventional laparoscopic appendectomy. It is important because it epidemiologically and statistically analyses a very subjective aspect, the result of a surgical act, which increasingly arouses interest in the society. Patients often attend check-ups to discuss their surgical scar size and appearance.¹ Some also request an intervention that ensures that they are not scarred.² This is reflected in our study, as 31% of the patients requested a transumbilical appendectomy. This is once more confirmed as 71% of patients considered the cosmetic result following appendectomy to be important. On the other hand, many papers comparing the results from different surgical methods, support a given approach based on the aesthetic results perceived by surgeons.³ Patient opinion has been assessed on very few occasions with the aim of changing our objectives or even to know whether there is a real opportunity for improvement. Dunker, Polle et al^{4,5} used a long questionnaire on body image to determine

the aesthetic result differences, between laparoscopy and laparotomy used in different coloproctological procedures. These studies examine surgically treated chronic disorders unlike those presented in our paper. Patients with these disorders have experienced previous hospital admissions, pharmacological treatment and significant deterioration in quality of life. Furthermore, the scars produced by the intervention are clearly very different and larger than those produced following laparoscopic appendectomy, which is why we have employed these questionnaires.

At present, single incision laparoscopic surgery (SILS) has reopened the debate on General Surgery aesthetics. This means that it is vitally important that we understand our situation, know what opinions patients have, given that they are the beneficiaries of our work. In this specific case, we have observed that 3-port laparoscopic appendectomy patients generally have a high level of satisfaction for all parameters recorded using the visual analogue scale, and that almost 100% would recommend this technique to a friend or family member. We should also consider if intradermal suture or adhesive substances instead of mechanical suture would have improved this perception.^{6,7} Given that the patients have not negatively evaluated the number of scars produced using laparoscopic appendectomy makes us question whether this item is important. However, some patients expressed that aesthetic results are closely related with those observed in other people. As such, some stated that the scars could hardly be seen, especially when comparing them with family members or friends that had undergone laparotomy approaches. We also observed that for many patients the most important aspect was that their acute abdominal disorder had satisfactorily been resolved, even for those that were operated on a longer time ago. This gives us an idea of how much the patient's previous state or degree of pain suffered influences his or her perception of the intervention's aesthetic results.⁸ However, having achieved the appendectomy's main objective, i.e. remove the abdominal infection, the quality of care given depends on factors like aesthetics, even more so in younger patients. In this sense, the imminent future for this matter will take to the research to assess the improvement associated with a priori less invasive techniques, such as transumbilical surgery.

To conclude, it is difficult to determine an objective for patient satisfaction with regards the aesthetic results of an abdominal laparoscopic surgical intervention, as there are numerous specific factors for each patient. Everything seems

to indicate that operations that require a small number of access ports, such as the appendectomy, patients are happy with the number, size and visibility of the scars, since there is little room for improvement. Preventing infection in the access ports and assessing the aesthetic results at least 6 months after the intervention is recommended for the most reliable conclusions.

Conflict of interest

The authors affirm that they have no conflict of interest.

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