



# Journal of Health and Medical Sciences

**Gagliano, Ettore, Querci, Antonio, Paparo, Domenica, Sanchez, Maribel Cristina, Pintabona, Giusy, and Cucinotta, Eugenio. (2018), Do all Inguinal Hernias Need Surgery? In: *Journal of Health and Medical Sciences*, Vol.1, No.1, 65-70.**

ISSN 2622-7258

DOI: 10.31014/aior.1994.01.01.8

The online version of this article can be found at:

**<https://www.asianinstituteofresearch.org/>**

Published by:  
The Asian Institute of Research

The *Journal of Health and Medical Sciences* is an Open Access publication. It may be read, copied and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Journal of Health and Medical Sciences* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Medicine and Public Health, including medicine, surgery, ophthalmology, gynecology and obstetrics, psychiatry, anesthesia, pediatrics, orthopedics, microbiology, pathology and laboratory medicine, medical education, research methodology, forensic medicine, medical ethics, community medicine, public health, community health, behavioral health, health policy, health service, health education, health economics, medical ethics, health protection, environmental health, and equity in health. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Health and Medical Sciences* aims to facilitate scholarly work on recent theoretical and practical aspects of Health and Medical Sciences.



ASIAN INSTITUTE OF RESEARCH  
Connecting Scholars Worldwide



## Do all Inguinal Hernias Need Surgery?

Ettore Gagliano<sup>1</sup>, Antonio Querci<sup>2</sup>, Domenica Paparo<sup>3</sup>, Maribel Cristina Sanchez<sup>4</sup>, Giusy Pintabona<sup>5</sup>, Eugenio Cucinotta<sup>6</sup>

<sup>1,2,3,4,5</sup> Department of Surgery, Università degli Studi di Messina

<sup>6</sup> Director of the Department of Surgery, Università degli Studi di Messina

Corresponding Author: Ettore Gagliano, Department of Surgery, Università degli Studi di Messina. Email: egagliano@unime.it

### Abstract

**Background:** For hernias that aren't painful, choosing watchful waiting instead of immediate surgery isn't tied to any long-term health problems. Many patients who took a wait-and-see approach with the groin bulges ended up eventually getting surgery when their hernias grew too big or started causing pain. **Methodology:** Watchful waiting were followed up at 6 months and annually and watched for hernia symptoms; repair patients received standard open tension-free Lichtenstein repair and were followed up at 3 and 6 months and annually. **Results:** Watchful waiting is an acceptable option for men with minimally symptomatic inguinal hernias. Delaying surgical repair until symptoms increase is safe because acute hernia incarcerations occur rarely.

**Keywords:** Inguinal Hernia, Watchful Waiting, Mesh, Lichtenstein Repair

### Introduction

Groin hernia is one of the most common worldwide afflictions of adults, especially men (Rutkow I, Robbins AW 1998). Although the idea of repairing inguinal hernias by reconstructing the posterior wall of the inguinal canal with prosthetic materials goes back to the first half of the 1950s (Bendavid R 1989) (Lichtenstein H 1987), it was established in the middle of the 1980s definitely with the so-called "tension-free" technique proposed by Lichtenstein in 1984, and now considered the gold standard for the management of inguinal hernia (Amid PK, Shulman AG, Lichtenstein H 1995) (Lichtenstein IL, Shulman AG 1986).

The recordings of medical history include discussions about effective means of treatment (Amid PK, Shulman AG, Lichtenstein IL 1996). In the United States, approximately 500,000-750,000 herniorrhaphies are performed each year. It was the most common surgical operation performed by general surgeons in the USA in 1991. The results are direct costs for the surgical procedure and significant indirect costs because of time away from normal activities (Fitzgibbons RJ jr., Jonasson O, Gibbs JO, et al. 2003).

### Natural history

The natural history of an untreated inguinal hernia is poorly understood with almost no modern data available. This is because of the commonly held opinion that all inguinal hernias should be repaired when diagnosed to prevent the complication of intestinal obstruction and/or strangulation of incarcerated contents (Nyhus LM 1993). Many surgeons recommend routine herniorrhaphy who do not herniorrhaphy because of the belief that the longer an inguinal hernia goes un-repaired (Cunningham J, Temple WJ, Mitchell P, et al. 1996) (Koontz AR

1963). Epitomized the prevailing attitude towards non-operative strategies for inguinal hernia management when he wrote: "There are very few cases in which nonoperative mechanical devices are necessary or desirable. They are timid people who do not face up to the realities of any situation. The operation is so simple that it is, by all means, the method of choice (Neuhauser D 1977) (Bendavid R 1998).

This opinion has been questioned because, in fact, the risk of a major complication such as obstruction and/or strangulation is probably lower than the 2-6% risk often quoted in older textbooks.

However, patients on watchful waiting have a 68% chance to get operated in the future because of the hernia becoming symptomatic. This risk is even greater for older patients. A watchful waiting strategy also seems to for ratio: 1.59, 95% confidence interval (Bendavid R 1998) (Fitzgibbons RJ jr., Giobbie-Hurder A, Gibbs JO, et al. 2006). For these patients, the strangulation risk is 0.55% at 4 years of follow-up. Even for older patients, a programmed surgical repair for asymptomatic hernias is more logical. There are very few patients that are unfit for a mesh hernioplasty under local anesthesia (Barkun J, Neville A, Fitzgerald GW, et al. 2008) (Fitzgibbons RJ jr., Giobbie-Hurder A, Gibbs JO, et al. 2006) (O'Dwyer PJ, Chung L 2006). On the other hand, I wouldn't force an old, frail, asymptomatic patient to have repair if he was thoughtful about an operation. In the end, it all depends on the patient's general conditions, comorbidities, and willingness to get operated (Fitzgibbons RJ jr., Jonasson O, Gibbs JO, et al. 2003).

The rationale for surgery in an inguinal hernia is the treatment of current or future symptoms, and not to prevent incarceration (Amid PK, Shulman AG, Lichtenstein H 1995).

I think patients should be operated as soon as possible. In doing so because we can protect side effects due to an incarcerated hernia; bowel, appendix necrosis due to compression, torsion of the ovary (Malek S, Torella F, Edwards PR, 2004).

I think it is important to consider the potential side effects and complications of surgery when advocating surgical interventions. Some patients experience disabling levels of pain following surgery and if a patient is without symptoms, are they willing to take the risk of 10-15% for pain 6 months after surgery (Poobalan AS, Bruce J, Smith WC, et al. 2003) (Aasvang E, Khlet H, 2005)?

For each surgeon to be able to answer your question fully, he/she must acquire a realistic view of his/her personal results. All surgeons are not equal. By some surgeons, the risk for prolonged postoperative pain will be significantly lower than 10%, while by others that risk will by far exceed 15% (Heise CP, Starling JR 1998) (Nyhus LM, Klein MS, Rogers FB 1991).

Recent studies showed that monitoring patients, instead of them having immediate elective surgery, did not raise the risk of strangulated hernia. So probably a policy of "watchful waiting" could be adopted when the hernia is painless, not growing, without complications and when the patients do not demand the repair (Neumayer L, Giobbie-Hunder A, Jonasson O 2004).

"Watchful waiting" is a term adapted for scientific follow-up, not for routine clinical practice. How many doctors out here would refuse an operation for an asymptomatic hernia, and then follow that patients with regul are not just recurrence, but also failure return visits? And for how long? We don't need to be "watchful," the patients will come back when symptoms become more bothersome (Berliner SD 1984).

The strangulation rate for non-operative management is slow in the medium to long-term, and therefore this is not necessarily relieved by surgery with a "failure rate" of 10-20% in most series in terms of chronic post-op pain as quoted above (failure, in my opinion, is not just recurrence, but also failed to relieve symptoms) (Starling JR, Harms BA, 1989) (Heis CP, Starling J 1998).

Overall, since the benefit of repair is quite small, any increase in operative risk due to patient comorbidity should result in the patient being counselled against operative repair in my opinion, especially if the hernia is not symptomatic (Turaga K, Fitzgibbons RJ, Puri V 2008).

For symptomatic hernias, a repair is still a valid option, as long as the patient is willing to accept as part of informed consent that there is at least a 10% chance of ongoing symptoms after surgery (Lichtenstein IL, Shulman AG 1986, Fitzgibbons R 86th Annual Clinical Congress, Chicago 2000) (Shulman AG, Amid PK, Lichtenstein IL 1992).

The words “the end” on the hernia surgery will never be written. In literature, each of us can find articles to support their ideas. Is for this reason that the experience still has a vital role (Rutkow IM, Robbins A 2001) (Wantz G 1989).

When I was a young surgeon, and prosthetic surgery hernia was at the beginning, I worked all patients with a hernia I saw. Young people with small asymptomatic hernias, elderly people with large symptomatic herniations, women with a small or large femoral hernia or inguinal hernias. Then, one day a young women of thirty-eight years old operated on for asymptomatic femoral hernia, within a few days after the procedure, began to suffer inguinal neuralgia and told me that since he had been operated on, his discomfort was significant enough to prevent her from normal daily activities, which did not happen before the surgery. Since then, bearing in mind that the complication rate of the inguinal hernia patients is less than 2/1000 patients-year (follow-up of 4 years) and the rate of post-herniorrhaphy neuralgia is about 11% two years after surgery. I work only symptomatic hernias and have adopted a policy of Watchful Waiting that was never given any particular problems in a personal series of more than 1000 procedures.

These figures were based more on speculation rather than scientific fact given that hernias are usually repaired when diagnosed making it impossible to do a population-based study to determine risk rate.

Neuhauser D 1977 found two diverse groups of patients allowing him to ascertain the actual risk of a hernia accident better. The first group consisted of 8,633 patients enrolled in Paul Berger's truss clinic in Paris described in an 1896 publication. This was an important database for looking at natural history because Bassini's method(33) had yet to be widely adopted and therefore elective herniorrhaphy was rarely done. Berger kept records on his truss patients and enumerated untoward events. There were a total of 242 accidents that translated into a yearly risk of 0,0037. Neuhauser's second group came from unpublished data from Cali, Colombia where it just so happens that almost no elective hernia repairs were performed. He found the annual risk of a major complication for this group to be 0,00290. Using such data, it can be estimated that an 18-year-old man has a 0.272-lifetime risk of strangulation and a 75-year-olds risk is 0,034.

Not only is the accident risk low but the operative mortality for the treatment of such an accident may have been overstated in the past. The operative mortality for patients undergoing an operation for an inguinal hernia complicated by obstruction has traditionally been quoted at between 0.1 and 0.2 % which is at least 10 times greater than the mortality for elective herniorrhaphy (Amid PK, Lichtenstein IL 1998).

Neuhauser looked at Medicare discharge data on 84,995 patients from 1971 specifically examining ICD code 550 (an Inguinal hernia without obstruction) and code 552 (an inguinal hernia with obstruction). He found the mortality to be .00519 and .0469 respectively. This confirmed the 10-fold increase in mortality for patients presenting with intestinal obstruction when compared to non obstructed patients but must be interpreted in the light of the extremely low overall mortality compared to the 0.1-0.2 considered. Based on Neuhauser's incidence, the life expectancy in 1971, and the operative mortality rates for uncomplicated and complicated hernia repair in the Medicare population in 1971, he felt that for patients' 65 years old, the elective operation has a higher loss of life than no operation (Giaetta E, DeCian F, Cuneo S, et al. 1997).

To summarize, despite popular wisdom to the contrary, it may be that patients with inguinal hernias can safely delay surgical treatment in favor of careful, watchful waiting (WW) as the method of management for their hernia. The question is moot in the symptomatic patient because the indication for surgery is discomfort, not the prevention of complications. But what about the patient with an asymptomatic or minimally symptomatic hernia (Amid PK 2003)(McVay CB, Anson BJ, 1940) (Read RC New York: Springer-Verlag 2001)?

At the same it has become clear that the risk of complications of an untreated hernia as well as the operative mortality for caring for complications of an untreated inguinal hernia has been overstated, it is now realized that inguinal herniorrhaphy results in greater morbidity than has previously been appreciated.

### **Complications related to the Herniorrhaphy**

The recurrence rate has been brought down to a minimum using modern hernioplasty techniques. Various groin pain syndromes may usually developed from scar tissue, reaction to prosthetic material or incorporation of nerve in staples or suture material during repair of the hernia. Chronic postoperative groin pain occurs without regard to the type of repair of the hernia. The nerves that are usually involved are the ilioinguinal nerve, the iliohypogastric nerve, and both the genital and femoral branches of the genitofemoral nerve and the lateral cutaneous nerve of the thigh. The former two are especially prone to injury during a conventional herniorrhaphy while the latter is most damaged during laparoscopy. A femoral nerve injury is extremely rare and is usually the result of a gross technical misadventure. This is fortunate because of the motor component of this structure. Randomized study by Cunningham from Canada, postoperative groin pain is probably more common than generally appreciated. In this series, at one-year post surgery, 62.9% of patients had groin pain, and 11.9% of those patients rate the pain as moderate to severe. Treatment is difficult with many patients failing all measures. The situation is compounded when workman's compensation issues cloud the picture. The first thing that must be ruled out is a recurrent hernia. This can be difficult. A sonographic examination may be helpful. When the operation is the only alternative, scar lysis, and neurolysis and/or neurectomy are performed. A recent report suggests that some might be improved by prosthesis removal.

Ischemic orchitis and testicular atrophy may be the results of the blood supply of the testicle are compromised during herniorrhaphy. Orchitis is defined as postoperative inflammation of the testicle occurring within one to two days after surgery. Clinically the patient has painful enlargement of the testicle that is hard in consistency and associated with a low-grade fever. The pain is severe and may last several weeks. Ischemic orchitis is most likely due thrombosis of the veins draining the testicle due to dissection of the spermatic cord. This condition may progress and result in testicular atrophy that takes several months to develop. Not all patients with ischemic orchitis will develop testicular atrophy because, fortunately, the testicle has a good supply. In fact, the occurrence is quite unpredictable, as most patients who develop testicular atrophy do not have a history of any testicular problems associated with the index herniorrhaphy. Vice versa, the vast majority of patients with testicular problems as an immediate complication of their herniorrhaphy go on to recovery without atrophy. Bendavid studied the incidence of testicular atrophy at the Shouldice Hospital. He found 19 patients out of 52,583 primary inguinal hernia repairs (0.036%) and 33 patients out of 7,169 recurrent inguinal hernia repairs (0.46%).

Bleeding can occur producing a wound or scrotal hematoma. This is usually the result of delayed from the cremasteric, internal spermatic or branches of the inferior epigastric vessels. Injuries to the deep circumflex artery, the corona mortis or the external iliac vessels may result in a large retroperitoneal hematoma.

Osteitis pubis seems to have disappeared as a complication following the elimination of sutures through the periosteum. With a laparoscopic repair, staples are used to attach the mesh to Cooper's ligament, which may sometimes produce osteitis. The more liberal use of prosthetic material during conventional herniorrhaphy and the routine use with laparoscopy has made the discussion of complication related directly to foreign material more timely. Tissue response, which is variable from person to person, can be so intense that the prosthetic material can be deformed by contraction. Intestinal obstruction or fistulization is possible by erosion especially if there is physical contact between the intestine and the prosthesis.

Infection is rarely seen for prostheses used for groin hernia repair in contradistinction to ventral herniorrhaphy. The reason for this is not clear. When infections do occur, they can occasionally be treated with drainage and prolonged antibiotic, but usually, the prosthesis must be removed. Rejection because of an allergic response is possible but extremely rare. What patients call rejection in their histories usually is the result of infection.

### **Conclusion**

It's necessary to tailor the treatment recommendation for the individual patient. I think watchful waiting for patients with small asymptomatic or minimally symptomatic hernias with two caveats: 1. The patient must understand the symptoms of incarceration/strangulation and the potential need for an emergent operation if that occurs; and 2. If the patient notices the hernia enlarging, I ask them to return to the clinic to be reevaluated, as a large inguinal-scrotal hernia is more challenging to operatively repair

### Summary

A strategy of watchful waiting is a safe and acceptable option for men with asymptomatic or minimally symptomatic inguinal hernias. Acute hernia incarcerations occur rarely, and patients who develop symptoms have no greater risk of operative complications than those undergoing prophylactic hernia repair.

### References

- Rutkow I, Robbins AW Mesh plug repair and groin Hernia Surg. Clin.N.A. 1998;78(6 Dec)
- Bendavid R. New Techniques in Hernia Repair, World J Surg 1989;13(5):522-531
- Lichtenstein H. Herniorrhaphy. A personal experience with 6321 cases. Am J Surg 1987.153(6):553-559
- Amid PK, Shulman AG, Lichtenstein H. The Lichtenstein open "tension-free" mesh repair of inguinal hernias. Surg. Today 1995.25:619-625
- Lichtenstein IL, Shulman AG. Ambulatory outpatients hernia surgery including a new concept introducing tension-free repair.Int Surg 1986,71:1-4
- Amid PK, Shulman AG, Lichtenstein IL. Open "tension-free" repair of inguinal hernias: the Lichtenstein technique. Eur J Surg; 1996 162:447-453
- Fitzgibbons RJ jr, Jonasson O, Gibbs JO, et al. The development of a clinical trial to determine if watchful waiting is an acceptable alternative to routine herniorrhaphy for patients with minimal or no hernia symptoms. J Am Coll Surg 2003.136:737-742
- Nyhus LM. Individualization of hernia repair: a new era. Surgery. 1993,114:1-2
- Cunningham J, Temple WJ, Mitchell P, Nixon JA, Preshaw RM, Hagen NA: Cooperative hernia study. Pain in the postrepair patient. Ann Surg 1996; 224(5):598-602
- Koontz AR. Hernia New York Appleton-Century-Crofts 1963
- Neuhauser D. Elective inguinal herniorrhaphy versus truss in the elderly. In: Bunker JP, Barnes BA, Mosteller F, editors. Costs, risks, and benefits of surgery. New York: Oxford University Press, 1977:223-239
- Bendavid R. Complications of groin hernia surgery. Surg Clin N Amer 1998; 78(6)
- Fitzgibbons RJ jr, Giobbie-Hurder A, Gibbs JO, Dunlop DD et al. Watchful Waiting vs Repair of Inguinal Hernia in Minimally Symptomatic Men A Randomized clinical Trial. Jama 2006,vol 295 No 3
- Barkun J, Neville A, Fitzgerald GW, Litwin D; Evidence-Based Reviews in Surgery Group; Canadian Association of General Surgeons; American College of Surgeons. Canadian Association of General Surgeons and American College of Surgeons evidence-based reviews in surgery. 26. Watchful waiting versus repair of inguinal hernia in minimally symptomatic men. Can J Surg 2008,51:406-409
- Fitzgibbons RJ Jr, Giobbie-Hurder A, Gibbs JO, Dunlop DD, Reda DJ, McCarthy M Jr et al. Watchful waiting vs repair of inguinal hernia in minimally symptomatic men: a randomized clinical trial. JAMA 2006,295:285-292
- O'Dwyer PJ, Chung L. Watchful waiting was as safe surgical repair for minimally symptomatic inguinal hernias. Evid Based Med 2006,11:73-4
- Fitzgibbons RJ Jr, Jonasson O, Gibbs JO, et al. The development of a clinical trial to determine if watchful waiting is an acceptable alternative to routine herniorrhaphy for patients with minimal or no hernia symptoms. J Am Coll Surg 2003; 196:737-42
- Amid PK, Shulman AG, Lichtenstein H. The Lichtenstein open "tension-free" mesh repair of inguinal hernias. Surg. Today 1995.25:619-625
- Malek S, Torella F, Edwards PR. Emergency repair of groin herniae: outcome and implications for elective surgery waiting times. Int J Clin Pract 2004,58:207-209
- Poobalan AS, Bruce J, Smith WC, et. Al. A review of chronic pain after inguinal hernioplasty. Clin J Pain 2003,19:48-54
- Aasvang E, Khlet H. Chronic postoperative pain: the case of inguinal hernioplasty. BJA 2005,69-76
- Heise CP, Starling JR.: Mesh inguinodynia: a new syndrome after inguinal herniorrhaphy? J Am Coll Surg 1998; 187(5):514-518
- Nyhus LM, Klein MS, Rogers FB. Inguinal hernia. Current Problems in Surgery 1991 (June):403-50

- Neumayer L, Giobbie-Hunder A, Jonasson O et al: Open mesh versus laparoscopic mesh repair of inguinal hernia. *N Engl J Med* 2004,250:1819-27
- Berliner SD. An approach to groin hernia. *Surg Clinics N Amer* 1984,64(2):197-213
- Starling JR, Harms BA. Diagnosis and treatment of genitofemoral and ilioinguinal neuralgia. *World J Surg* 1989,13:586-91
- Heis CP, Starling J. Mesh inguinodynia: a new clinical syndrome after inguinal herniorrhaphy. *J Am Coll Surg* 1998, 187:514-8
- Turaga K, Fitzgibbons RJ, Puri V. Inguinal hernias: Should we repair? *Surg Clin North Am* 2008,88:127-138
- Lichtenstein IL, Shulman AG. Ambulatory outpatient hernia surgery. Including a new concept, introducing tension-free repair. *Int Surg* 1986, 71:1-4
- Fitzgibbons R. Management of an inguinal hernia: conventional? Tension free? Laparoscopic? Or may be no treatment at all. General Session of the American College of Surgeons. 86th Annual Clinical Congress, Chicago 2000
- Shulman AG, Amid PK, Lichtenstein IL. The safety of mesh repair for primary inguinal hernias: results of 3019 operations from five diverser surgical sources. *Am Surg* 1992,58:553-8
- Rutkow IM, Robbins A: The mesh plug repair. In: *Abdominal Wall Hernias*. R. Bendavid, ed. New York:Springer-Verlag 2001,382-7
- Wantz G. The operation of Bassini as described by Attilio Catterina. *Surg. Gynecol & Obstet* 1989;168:67-80
- Neuhauser D. Elective inguinal herniorrhaphy versus truss in the elderly. In:Bunker JP, Barnes BA, Mosteller F. editors. *Cost, risks, and benefits of surgery*. New York: Oxford University. Press. 1977:233-239
- Amid PK, Lichtenstein IL. Long-term result and current status of the Lichtenstein open tension-free hernioplasty. *Hernia* 1998,2:89-94
- Giaetta E, DeCian F, Cuneo S, et al. Hernia repair in elderly patients. *Br J surg* 1997,84:983-5
- Amid PK. Lichtenstein tension-free hernioplasty: its inception, evolution and principles. *Hernia* 2003,8:1-7
- McVay CB, Anson BJ. Aponeurotic and fascial contiuities in the abdomen, pelvis, and thigh. *Anat. Rec* 1940,76:213-21
- Read RC. Use of the preperitoneal space in inguino-femoral herniorrhaphy: historical considerations. In: Bendavid R, editor. *Abdominal wall hernias*. New York: Springer-Verlag 2001, p. 11-5