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surgeons and patients. Of course, we must also consider the great confusion that was generated around this technique, which has led, for example, many authors to call off this procedure. Stapled hemorrhoidectomy is an absolutely wrong notion and often it misled the technique and results. The etiopathogenetic principle at the base of this procedure should not be considered as a dogma and, consequently, stapled hemorrhoidopexy cannot be considered the only one solution to treat hemorrhoidal diseases.

In the fourth phase of awareness, surgeons obtain better results with a combination of great postoperative comfort of patients, the reduction of complications and the improving of long-term outcome. In order to be able to give some objective indications on pros and cons about stapled procedure, I cannot rely too much on the analysis of the literature because it reported everything and its opposite, depending on the point of view from which results were analyzed.

2 Considerations on the Rationale of the Technique

The unitary theory of the prolapse by Longo, which hypothesizes the evolutivity of hemorrhoidal prolapse until to the external prolapse, is absolutely fascinating, but, in my opinion, it represents more the rationale of the technique (a regulated rectal resection in consideration of the amount of rectal prolapse) rather than the real etiology of hemorrhoidal prolapse. It is certainly true that behind every hemorrhoidal prolapse there is an internal rectal prolapse, but unfortunately, the treatment of the internal rectal prolapse does not always solve all the symptoms that lead the patient to the surgeon. The typical evidence is that the hemorrhoidal component is extremely small in the external prolapses, so the progression from hemorrhoidal prolapse toward rectal prolapse is fascinating but visually unsustainable (Fig. 1).

The biggest mistake that the scientific community continues to make is to consider all patients with symptoms related to hemorrhoidal disease as equal. Those who deal with this disease know that it is absolutely not true. All the efforts of the authors are in comparing the various techniques, without considering that, in this way, they compare the surgical techniques without taking into consideration the great variability of clinical and anatomical presentations.

Unfortunately, Goligher’s classification does not help us very much in this, because it considers only the reducibility or not of prolapse, that are absolutely not enough for a proper patient classification.

Goligher’s classification does not give us any information on the size of the prolapse and its impact on the quality of life.

Fig. 1 Complete external rectal prolapses with small hemorrhoidal component
In addition to not giving us information on the size of the prolapse and its impact on quality of life, I want to emphasize that the reducibility or not of the prolapse is mainly linked to the patient’s habits, and it does not correlate absolutely with the “severity” of the clinical situation.

Surgeons who perform stapled surgery treat rectoanl prolapse to resolve symptoms related to hemorrhoids. The first thing to underline is that surgeons continue to consider a false message that comes from literature in which stapled procedure is deemed as a mucosectomy. Daily experience and literature showed that the treatment with stapler lead always to a full thickness resection (Ho et al. 2000; Esser et al. 2004; Chung et al. 2005; Kam et al. 2005; Naldini et al. 2009; Behboo et al. 2011; Calomino et al. 2011) (Fig. 2).

If it could be possible to perform a mucosectomy (representing a technical mistake), the results would be worse as pointed out by Festen et al. (2012). So, categorically, those who think that a full thickness resection of the rectum (or some minimal portions of the rectum) could be an overtreatment for hemorrhoids should not perform this technique hiding themselves behind a lie. This cannot be the strongest topic against this surgery, concluding accordingly that the complications can be more serious. Severe septic complications have been described in all kinds of surgical treatment for hemorrhoidal disease, and all of these procedures involve not only mucosa but also the deeper layer of the rectal wall (Albuquerque 2016; Berstock et al. 2010; MCloud et al. 2006).

About possible limits of this technique, in a portion of patients with symptoms due to the external component of hemorrhoids (for example in recurrent thrombosis) or to large hemorrhoids difficult to reposition inside the anal canal (Fig. 3a), stapler procedure could not guarantee a complete resolution of the symptoms. In this case, an hemorrhoidectomy is mandatory and sometimes it could be associated with a stapler procedure.

The resection of a rectal prolapse restores or decreases the dimension of the rectal ampulla with the risk of onset of incontinence or more often a worsening of it. This complication is rare in case of a normal anatomy and functionality of the sphincters, but it is more frequent in case of functional and/or anatomical alterations. A good selection of patients is very important to reduce these complications (Naldini et al. 2015).

### 3 Pros

- **Operative time:** It should be considered in this period in which costs analysis is important but, in my clinical practice, it does not represent a support element of the technique, because it could be related to the difficulties of the clinical situation regardless of the technique used.

- **Shorter hospital stay:** In my opinion, this should not be considered as a pros factor because all types of procedures for hemorrhoidal disease could be performed on day surgery or with a day of hospitalization on the basis of the preferences or needs of the surgeon. I want to underline the concept of the needs of the surgeons, often forced by the administrations to an early discharge. A
technique without early complications does not exist, and anyway there is no evidence of superiority among the various techniques on this point.

I emphasize again that the management of proctologic complications at your home can present many difficulties, because for the patient it is a not visible and difficult to manage area. For this, if it is possible, I prefer to discharge the patients the morning after the procedure.

– Less pain at rest and on defecation: It is certainly true that in most cases pain is very little or absent since the day after surgery. As in all techniques for hemorrhoids, we prescribe analgesic therapy at home for at least 3 or 4 days, but sometimes pain may be very strong. It depends on two factors: the quality of the surgical treatment and the proper management of intraoperative and perioperative analgesia.

Unfortunately, years of experience and the attendance of operating rooms around the world have led me to understand that the stapled hemorrhoidopexy is “the most interpreted operation” in the world. Everyone does it in his own way. The most important factor, that is the level of the suture line, is a subject very little discussed, instead representing the key to pain and outcome.

Very low sutures could give more pain, instead very high sutures could give tenesmus, poor lifting effect (residual or recurrent disease), or new difficulties to evacuate for hourglass rectum. Also the need to give many hemostatic stitches, especially in the posterior wall, may be hazardous to the risk of involving puborectalis muscle, creating fixity on the floors below.

– Earlier return to bowel function due to less painful defecation: This is the most important factor. The patient, who is informed that the first bowel movement will not be painful, lives the first defecation with less anxiety and consequently less spasm of pelvic muscles.

For years, pain represented the major fear and deterrent to undergo surgery for patients. For this reason, patients went to the surgeon when hemorrhoidal disease became unbearable, presenting many advanced anatomical situations. After stapled procedure, without

Fig. 3 Limits of stapled hemorrhoidopexy: (a) Hemorrhoidal prolapse with a large external hemorrhoidal component in which hemorrhoidectomy is mandatory; (b) Reducible hemorrhoidal prolapse with internal prolapse evaluation in which stapler procedure is indicated.
open wounds or multiple running sutures, but only an anastomotic line, pain is really very little.

– **Shorter time off work and earlier return to normal activities**: This is undeniable also because, even though patients might have the same pain compared with a stapler hemorrhoidopexy, in a Milligan Morgan hemorrhoidectomy, the presence of secretions and open wounds, that require more diligent and scrupulous hygiene, represent a deterrent to the resumption of normal activities. In conclusion, I can definitively say that with a good indication and a good selection of patients (about 60–70% of patients with symptoms from hemorrhoids), stapled hemorrhoidopexy is the procedure that best combines good postoperative comfort with a good outcome at medium and long term.

### 4 Cons

– **Early complications**: It is interesting to note that in a recent systematic review (Porrett et al. 2015) about complications published in 2015, including 86 articles in the bibliography, only 2 were published after 2010! This could mean that either complications were reduced thanks to technological improvements, better indications and completion of learning curves, or the attention to the problem decreased because of the reduction of “media pressure.” By analyzing literature and clinical practice, it is undeniable that there was a peak of complications and new complications. Many kinds of complications, some of which severe, were reported in literature, but almost all of them were reported in case reports and not in clinical trials. This is also the result of great economical and philosophical debate that was unleashed on this procedure. In the review by Porrett et al. (2015), early complications rate ranged from 2.3% to 58.9% with five deaths on a overall complication rates ranged from 3.3% to 81%. How it is possible? Or we do not perform the same procedure, or we do not operate the same patients or we do not do the same job, or someone tells lies. But if there really were all these problems, surgeons who perform stapled procedure would be masochists and certainly their patients would abandon them immediately. In literature, some really “bizarre complications” are reported, like rectal lacerations and rectal closure. Rectal lacerations due to difficulty in pulling out the stapler after firing: How is it possible? If the surgeon fails to pull out the stapler, he can open the stapler completely and remove it under direct vision. Rectal closure due to an incorrect introduction of the stapler after performing purse string suture: this is a severe technical error and I think it cannot be considered as a possible complication of the technique!

One thing is absolutely true: being a super-specialist technique, it should not be performed by a general surgeon who occasionally treat hemorrhoids (this was the initial problem of the trivialization of the technique under the commercial drive), but the procedure should be performed by experienced surgeons in this area, especially in performing stapler procedure.

But we have to consider that, being still a rectal resection although sometimes partial, complications may also include the possible involvement of the mesorectal and still extra-luminal tissues. Thanks to improved technology, bleeding complications from intraluminal suture drastically decreased, equating to all other techniques. The most severe complications are pararectal hematomas and anastomotic dehiscences. In these cases, two things are really important: surgeon must have experience in the management of these complications and above all he must manage his own complications. It is also crucial to recognize the complication promptly. Pararectal hematoma can self-restraint or, if it is active, it could be managed through selective embolization or intrarectal package. In presence of intraoperative dehiscence of the anastomoses, surgeon can perform again the suture with transanal stitches. But in case of postoperative dehiscence, if it is a partial one and the patient is asymptomatic (as in most of the cases),
surgeon may avoid surgical treatment and observe patient. It is frequently a more aggressive attitude by a surgeon who treats the complication after stapler procedure performed by others.

- **Late complications:** They could be the following:
  - **Pain:** It is not always true that stapler procedure is painless, but it is certainly the least painful approach. I disagree with Khubchandani et al. (2009) about his definition of post-PPH (stapler Procedure for Prolapse and Hemorrhoids) pain syndrome. The causes of prolonged postoperative pain can be basically two: Performing stapler procedure on patients suffering pain before surgery, mistakenly thinking that chronic pain could be secondary to hemorrhoids (chronic pain is not a typical symptom of hemorrhoidal disease); Involving, even slightly, the pelvic floor muscles with the suture (wrong inclination of the stapler) or with haemostatic stitches. In these cases, the suture remains fixed on the tissues below, so it gives referred pain due to the traction on the muscular tissue during physical activity or rectal stimulation. The first case is an evident and unfortunately frequent error about indications. In case of chronic pain in association with hemorrhoidal prolapse, every kind of operation, and in particular stapler procedure, can only worsen the situation. The second case is a “normal” postoperative complication (like the stenosis after hemorrhoidectomy) that it must be treated surgically as soon as possible with the removal and mobilization of the painful suture as reported in literature by Menconi et al. (2016). This study showed high rates of success when surgical approach is precociously performed.
  - **Urgency and incontinence:** Repositioning within the hemorrhoids through the resection of the prolapse, the stapler procedure can surely reduce the size and therefore the compliance of the rectum. For this reason also in this case a correct selection of patients is very important, in fact this kind of procedure is not indicated for patients with preoperative anal continence diseases or anatomical sphincter defects, or patients with diarrhea or irregular bowel and in those with rectal hypersensitivity because of irritable bowel syndrome (IBS). In our experience, urgency is present in 17% of patients at 1 week after stapler hemorrhoidopexy with high volume device and it resolved in about 67% of cases after within 6 months after surgery, furthermore good results were obtained with pelvic floor rehabilitation (Giani et al. 2014). However, I reiterate that the problem is the selection of patients.
  - **Stenosis:** Many authors talk about anal stenosis, but it would be more correct to talk about anastomotic stenosis and, although it is a rare complication, it must be considered. Stenosis is not related to the kind of device and its dimension or the kind of suture (double or multiple one, etc.). Stenosis seems to be related to preoperative or postoperative proctitis and to postoperative diarrhea. As in postoperative chronic pain, also in stenosis, the removal of a portion of the suture is indicated. The following use of dilatators is highly recommended to reduce the risk of recurrence. Certainly, anastomotic stenosis is more manageable than anal stenosis.
  - **Recurrence:** Literature is drastic about recurrence after stapled hemorrhoidopexy, and I confirm the pessimistic view of long-term recurrence. For this reason, some surgeons and I started to resect more tissue using two staplers and then a high volume stapler in case of major prolapse. Despite the same technique adopted, the first produced staplers are often insufficient to correct large prolapses because of their small case that it cannot hold all the prolapsing tissue, so more staplers or an high volume one are necessary to receive in the case all the prolapse to be resected. Moreover, the PPH was not a real dedicated device to this use (being the first product tool and never upgraded) and only subsequently dedicated devices were produced to solve these needs.
Adopting tailored prolapse surgery philosophy, which allows to resect the amount of tissue that surgeon feels the need to remove in a specific case also on the basis of the amount of prolapsing tissue, recurrence rate dramatically decreased (Naldini et al. 2015). This does not mean to change the kind of operation. I just pointed out that the procedure implies a full thickness resection, also using a PPH, so complications that could occur are the same. The same happens during a colonic resection in which the length of the bowel tract resected (10 or 20 cm) does not change neither the probability nor the type of complications. I agree with the literature that stresses that Milligan Morgan technique guarantees the lowest recurrence rate, but it is equally true and singular that literature showed a marked improvement of recurrence rate after Milligan Morgan since stapler surgery was born (Fig. 4). We could assess that one of the real benefits of stapled surgery was to improve the Milligan Morgan results.

− Costs: I am sure that I would never accept to undergo to a less comfortable operation with some doubts (outcome) and some certainties (postoperative pain), to save few money. I say this especially considering the important role that the anal region plays on the serenity and quality of life. An anal disease could interfere with the general and above all psychological welfare, so the cost of anything that might help to improve the treatment of this area is warranted. That said, the costs have dropped and they are expected to fall further, thanks to new competitors who have decided to invest mainly in the proctological field. In countries where cost-effectiveness is calculated including also the “social costs,” surely a surgery that allows an early return to work appears to be advantageous.

5 Conclusions

I hope I have been able to communicate my real feeling about surgery with stapler for treatment of hemorrhoidal disease. My thoughts can be summarized as follows: stapled procedure is an
excellent option (in my opinion the best) for the treatment of hemorrhoidal disease, in case of good indications and performed by dedicated surgeons who are able to treat any complication in high volume centers. It is dangerous to argue that stapled hemorrhoidopexy is suitable for treating all types of hemorrhoids, that it is a simple procedure without complications and postoperative pain, and that can be done by all. This message could lead to bad results and many problems.

6 Cross-References

▶ Classification of Hemorrhoidal Disease and Impact on the Choice of Treatment
▶ Literature review on Stapled Haemorrhoidopexy
▶ Main Advantages of Stapled Haemorrhoidopexy
▶ Main Disadvantages of Stapled Haemorrhoidopexy
▶ Stapled Hemorrhoidopexy: Techniques and Results
▶ Technical Tips and Tricks of Stapled Haemorrhoidopexy
▶ Why and when I do Prefer the Stapled Haemorrhoidopexy

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