

Article

Immediate and long-term results of Lichtenstein hernia repair

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Abstract: More than 20 million inguinal hernioplasties are performed annually worldwide by various methods [1]. The Lichtenstein operation recommended by the European Society of Herniologists as the "gold standard" in open inguinal hernia treatment, despite its leading position in the world, has a number of disadvantages. According to the studies of some surgeons, the introduction of implants has a correlation with the development of local wound complications and chronic pain syndrome in the postoperative period. And the percentage of recurrences after Lichtenstein hernioplasty ranges from 0.8 to 8% [2]. Some authors have noted an increased frequency of pain syndrome when using the ligature method of fixation of mesh implants. Their frequency ranges from 7 to 12% [3,4]. However, the issue of fixation is still controversial [5,6,7].

Aim of the study: to compare the results of Lichtenstein inguinal hernioplasty using self-fixing implants and implants requiring ligature fixation.

Keywords: inguinal hernioplasty, Progrid, fixation-free hernioplasty, Lichtenstein procedure, self-fixing implant.

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1. Materials and Methods

The immediate results of 626 inguinal hernioplasty according to Lichtenstein were analyzed (510 - in the group with the ligature method of polypropylene implant fixation, 116 - with the self-fixing Parietene Progrid). The mean age of patients in the groups was 56.4±0.95 years. The proportion of patients with bilateral localization of inguinal hernias was 40.4% in the first group and 42.2% in the second group. All hernias were primary in nature. To assess the nature and size of the hernia, we used the classification recommended by the European Hernia Society (EHS) for inguinal hernias. L-type hernias were detected in 307 patients (60,2%) in the first group and in 51 (44,0%) in the second; M-type hernias accounted for 203 patients (39,8%) and 65 patients (56,0%) respectively (fig.1).

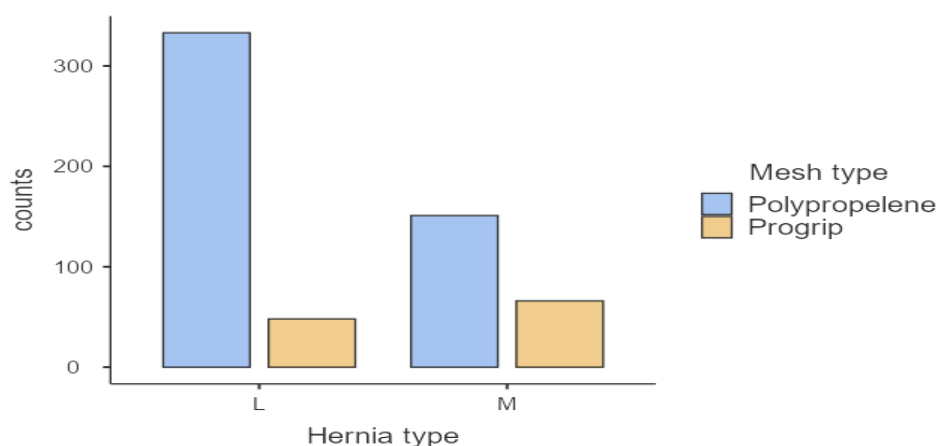


Figure 1. Distribution of patients by type of hernia (EHS).



We evaluated the time of surgical intervention, intraoperative complications in groups, early postoperative complications, presence of pain syndrome, foreign body sensation, and timing of analgesic administration as an indirect sign of the duration of postoperative pain. In 64 out of 100 patients, the long-term results were analyzed by assessing the quality of life according to the EuraHS Qol questionnaire.

2. Results

We observed a significant decrease in the mean operation time in the group with the use of Progrid self-fixing mesh, the latter amounting to 45.0 minutes. While fixation of polypropylene mesh lengthened the operation time by an average of 20.9 minutes. (45.0 ± 1.49 sd=16.0 vs. 65.9 ± 0.653 sd=14.7; $p < 0.01$). We were able to indirectly estimate the duration of pain syndrome in the postoperative period in the groups based on the duration of analgesic intake (fig.2).

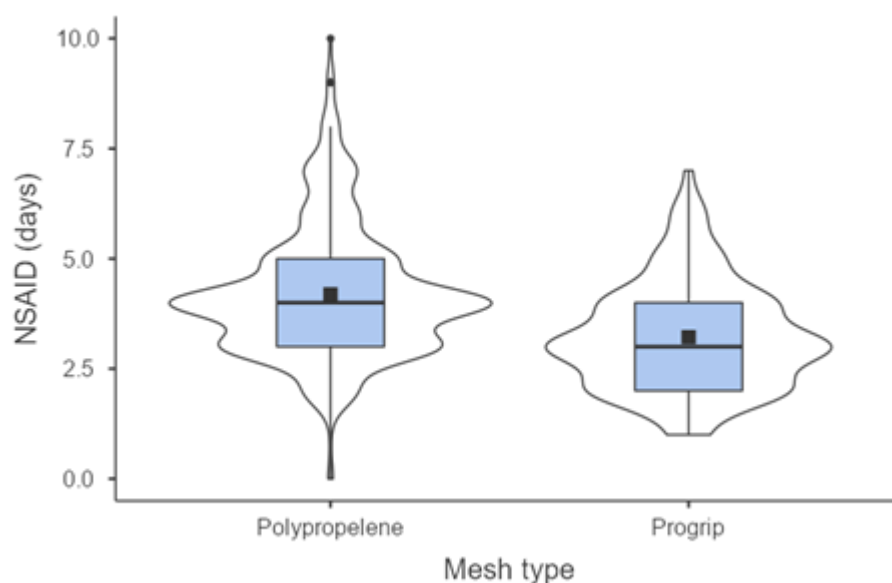


Figure 2. The duration of non-steroidal anti-inflammatory drugs in groups.

In the first group the average duration of non-steroidal anti-inflammatory drugs was 4.19 days, in the second group - 3.22 days (4.19 ± 0.065 vs 3.22 ± 0.113 U=17679 $p < 0.0001$ (Mann-Whitney test)) – Table 1

Table 1. Average rates of NSAID use in comparison groups.

	Group	N	Mean	Median	SD	SE
NSAID (days)	Polypropylene	510	4.19	4.00	1.46	0.0647
	Progrid	116	3.22	3.00	1.21	0.113

In the early postoperative period, we observed 171 (27.3%) local complications. The wound complications in both groups were dominated by soft tissue hematomas and seromas: 85 (13.6%) and 36 (5.8%), respectively. Overall, after evaluating inflammatory wound complications in both groups, we also obtained no significant differences ($\chi^2=1.01$, $df=1$, $p=0.314$). Analyzing the long-term results of treatment, we also found no statistically significant differences in the comparison groups for all quality of life indicators of the EHS questionnaire ($p=0.543$).

However, after hernioplasty using polypropylene implant with ligature fixation in the long-term follow-up period (up to a year) there was a tendency to increase the quality of life due to the decrease in the severity of pain syndrome and increase in the activity of patients. Recurrence of the disease was noted in 6 patients (1.2%) in the group with polypropylene implant fixation. No recurrences were found among the examined patients after fixation-free hernioplasty. There was no statistically significant difference in the comparison groups by this indicator.

3. Conclusions



The observed results in the Parietene Progrid group had no statistically significant differences with the group where suture fixation of polypropylene implant was used in the context of the incidence of wound complications, disease recurrence and quality of life in long-term follow-up ($P>0,05$). However, the use of self-fixing implants has notable advantages associated with a reduction in operative time ($p<0.01$), pain severity ($p<0.01$), and the timing of analgesic administration in the early postoperative period (4.19 ± 0.065 vs 3.22 ± 0.113 $U=17679$ $p<0.0001$).

Application of artificial intelligence:

The article is written without the use of artificial intelligence technologies.

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Conflicts of Interest: The authors declare no conflict of interest.

References

1. Zezarahova MD. CHOOSING A RATIONAL WAY TO TREAT INGUINAL HERNIAS IN PATIENTS WITH RISK FACTORS. Kuban State Medical Institute. 2007;21 (in Russian).
2. Prudnikova EA, Alibegov RA. Inguinal hernias: modern plastic surgery methods. Bulletin of the Smolensk Medical Academy. 2010;4:104-108.
3. Vizgalov SA, Smotrin SM. Inguinal hernias: modern aspects of etiopathogenesis and treatment. Journal of Grodno State Medical University. 2010; 4:17-22.
4. Starling, JR. Mesh Inguinodynia After Inguinal Herniorrhaphy. Abdominal Wall Hernias. 2001; 734–736.
5. Mazin JB. Post-Operative Inguinodynia from Hernia Surgery. Practical pain management. 2010; 10(3).
6. Bullen NL, Hajibandeh S, Hajibandeh S, Smart NJ, Antoniou SA. Suture fixation versus self-gripping mesh for open inguinal hernia repair: a systematic review with meta-analysis and trial sequential analysis. Surgical Endoscopy. 2021;35(6):2480-2492.
7. Honeyalsinh H. M. Comparison of progrip mesh v/s conventional mesh in lichtenstein's inguinal hernia repair. International Journal of Biomedical Research 2016; 7(10):738-742.

