A clinical study on the hemorrhoidectomy and the elevation of the flaccid anal transition cuties in the fourth-grade internal hemorrhoid

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Background
We established the ligation and ablation of the fourth-degree internal hemorrhoid by elevation of the flaccid anoderm.
Patients and methods
We analyze the clinical result of this operation method.
Results
The average healing period with the technique used in the study was 21.3±0.68 days compared with the Milligan-Morgan technique of 24.2±0.92 days, and the complications and aftereffects were also less.
Conclusion
The study reports that the ligation and ablation of the fourth-degree internal hemorrhoid by elevation of the flaccid anoderm is very satisfactory rather than the former operation methods.

Keywords:
anoderm, atonic, fourth grade, hemorrhoidectomy, internal hemorrhoid, transition cutis

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Introduction

Hemorrhoid is one of the anorectal diseases with relatively high incidence rate which shows slow recovery and often causes disability [1, 3].

Having bleeding and anal prolapse as a main symptom, fourth-degree internal hemorrhoid, which causes a great deal of change of anal duct's architecture and anal dysfunction as a consequence, has a serious outcomes [2].

Recently, many countries including the US use a type of hemorrhoidectomy on the fourth-degree hemorrhoid with ligating the flaccid anus by elevating anoderm based on the Milligan-Morgan technique.

However, only with this operation method, we cannot overcome the following shortcoming such as cause of total and partial anoderm, long recovery, and complications and aftereffects [4].

Consequently to solve this problem, we carried out the research focusing on the following points:

(1) To establish the operation method of hemorrhoidectomy and anoderm in case of fourth-degree internal hemorrhoid.
(2) To clarify the clinical achievement using this operation method.

Patients and methods

The study was carried out on 220 patients diagnosed as having fourth-degree internal hemorrhoid admitted to the hospital of medical college of the Kim Il Sung University between 2014 and 2017 (study group 104 patients and contrast group 116 patients). All procedures performed in the study involving human participants were in accordance with the ethical standards of the Institutional and National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Techniques

First, an incision is made on the anoderm and the inner hemorrhoid node according to the hemorrhoidectomy in the Milligan-Morgan technique (Fig. 1) [5, 11].

When 1–1.5 cm height of the upper part of the hemorrhoid is reached, two strings of the silk thread

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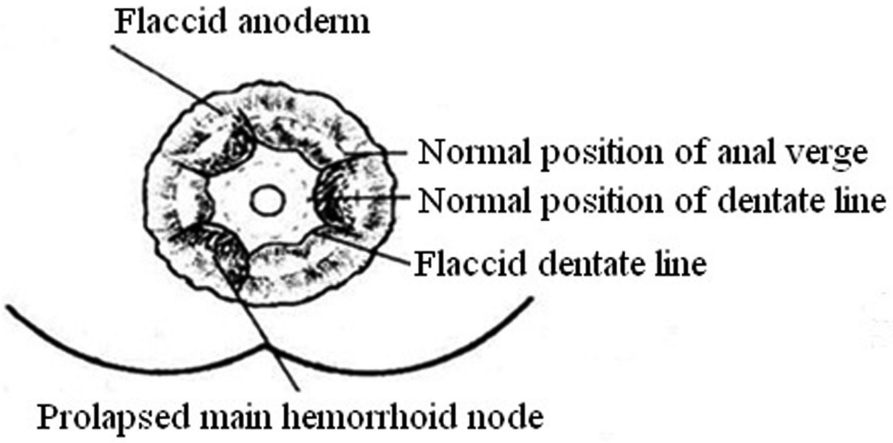
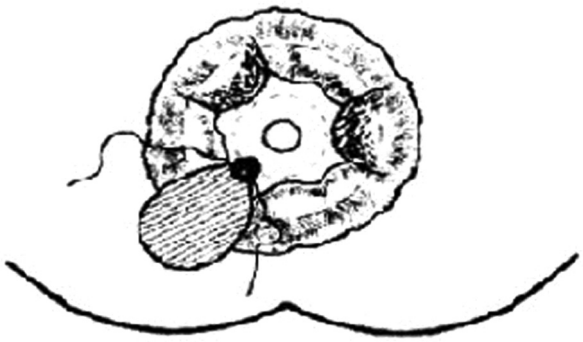
Figure 1



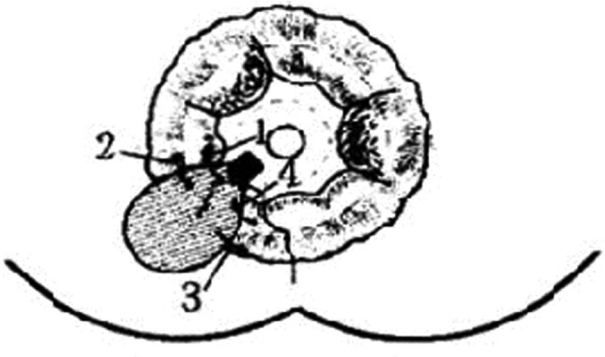
Changed anal canal in fourth-degree internal hemorrhoid.

Figure 2



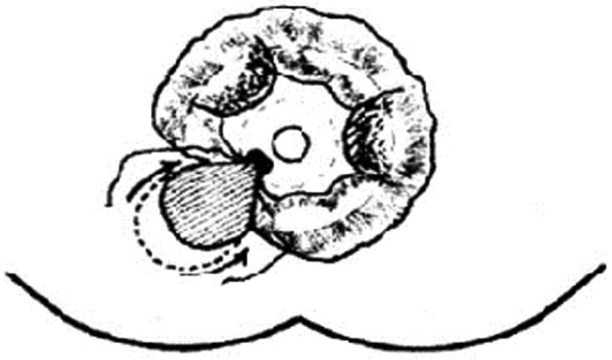
Incised status after ligating the main proximal part of 7-o'clock position hemorrhoid at 1–1.5 cm of the upper part of the dentate line.

Figure 3



4 places around the atonic anoderm are hooked with hemorrhoid proximal ligation.

Figure 4



Elevated atonic anoderm by hemorrhoid proximal ligation hooked at 4 places.

are passed through the center of the hemorrhoid node, and ligation of the node with one string is done (Fig. 2) [6].

The other string is passed through 1–3 places according to the length toward the outside of the node, and then the same way is done from the outside to ligation [7–9].

Then the anoderm is elevated to the node of the hemorrhoid at the 1 cm height of the upper plate line (Fig. 3).

Moreover, the hemorrhoid node is excised at the outside of the region 0.3 cm from the ligation made.

Hemorrhoidectomy is done to the rest of the hemorrhoid nodes according to the anal prolapse types in a similar way (leave the skin of 0.8 cm long between every wound; Fig. 4) [15].

Elevate the anoderm

Insert the aperture anoscope into the anal duct carefully to ensure if there is any bleeding or damage and put and fix the disinfected evacuation canal. Leave the suture for good discharge, and finally

put the gauge and fix with the sticking plaster to finish the operation (Fig. 5) [10].

Hemorrhoidectomy with ligating method based on Milligan-Morgan technique was done for the other group (contrast group) [13, 18].

Results

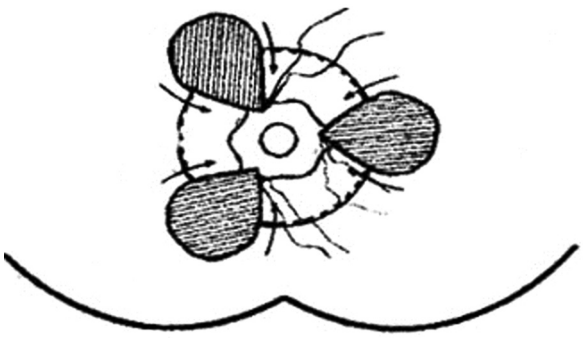
Postoperation healing period

Table 1 shows that the healing period of the study group is significantly shorter than the contrast group.

Postoperation complications

As one see, in the study group and the contrast group, anal stricture is the best part of the complications.

Figure 5



Repaired anal canal after hemorrhoidectomy with elevating the anoderm.

Table 2 shows that the complication incidence is lower in the study group than the contrast group.

Postoperation aftereffects

As one see, foreign body feeling is the main aftereffect not only in the study group but also in the contrast group.

Table 3 shows that the aftereffect incidence is lower in the study group than in the contrast group.

Discussion

So far various treatments for internal hemorrhoid have been discovered and widely applied, but their pros and cons have not reached absolute agreement.

This shows that there were some weak points because the treatment for internal hemorrhoid was dependent on radical cure to reduce subjective and objective symptoms, rather than the cause, thus the anatomical structure and physiological functions of the changed anal canal could not be fully recovered [12].

Therefore, it seems that the most important issue in achieving success in internal hemorrhoid treatment is to restore the anatomical structure of anal canal to its original state and for the better in the aftereffects of radical operation.

Owing to this issue, we performed hemorrhoidectomy for the fourth-degree internal hemorrhoid to remove

Table 1 Postoperation healing period

Objects	Unit	Healing period (days)				Mean±SD (days)
		16–19	20–23	24–27	28–31	
Study	104 (100.0)	30 (28.8)	47 (45.2)	21 (20.2)	6 (5.8)	21.3±0.68*
Contrast	116 (100.0)	12 (10.3)	33 (28.5)	51 (44.0)	20 (17.2)	24.2±0.92

*$P<0.05$.

Table 2 Postoperation complications

Objects	Unit	Complications				All
		Late bleeding	Anal stricture	Anal fissure	Perianal abscess	
Study	104 (100.0)	–	5 (4.8)	1 (1.0)	1 (1.0)	7 (6.8)*
Contrast	116 (100.0)	1 (0.9)	11 (9.5)	5 (4.3)	2 (1.7)	19 (16.4)

*$P<0.05$.

Table 3 Postoperation aftereffects

Object	Unit	Aftereffects					All
		Tenesmus	Foreign body feeling	Itching	Incontinence of feces	Anal stricture	
Study	104 (100.0)	–	4 (3.9)	2 (1.9)	–	2 (1.9)	8 (7.7)*
Contrast	116 (100.0)	2 (1.7)	20 (17.2)	7 (6.0)	2 (1.7)	7 (6.0)	38 (32.7)

*$P<0.05$.

hemorrhoid and drag flaccid anoderm above the line of the proximal part of hemorrhoid and could correct the anal change to the maximum and reduce complication and aftereffects of the operation [14, 20].

The main points of our new operation method are as follows.

First, we should ligate the proximal part of the prolapsed hemorrhoid at the height 1–1.5 cm above dentate line. That is because the superior rectal artery always branches at 3 cm above the dentate line toward the main hemorrhoid, and in advanced hemorrhoid, cushion tissues are increased, so that the dentate line descends lower than the original position [16].

Therefore, to prevent the relapse of internal hemorrhoid, the blood flow must be stopped in vein plexus under mucosa above the dentate line.

Second, the flaccid anoderm should be pulled up and attached at the height of proximal part of the hemorrhoid [19, 21].

That is because at the time of an operation the dentate line and anoderm, except wound surface, lose their bearing power to get off their normal anatomical position. At the same time their physiological function decreased.

What is more, after hemorrhoidectomy the wound surface is replaced with connective tissue during granulation phase, and mucosa loses its elasticity. In addition negative outcomes might occur and delay wound healing period [17].

So when the flaccid anal transitive skin without bearing power is dragged up to the proximal part of the hemorrhoid, all the components in the anal canal including the dentate line will return to their original position and will perform their normal physiological functions.

Third, the wound shape should be in drop shape and more than 8 mm should be ensured between the wounds. The reason is not only to leave larger trigger region in the anal canal but also to prevent improper granulation – wound by speeding up the epithelium of the inner wound rather that the outer one and to prevent anal stricture from wound fusion.

Fourth, in case of submucosal thrombus, thromboendarterectomy should be preceded by the elevation of flaccid anoderm.

Conclusion

We have successfully performed ligation and ablation of the fourth-degree internal hemorrhoid by elevation of the flaccid anoderm.

We have clarified the clinical result of this operation method.

The average healing period was 21.3±0.68 days when introducing hemorrhoidectomy on the fourth-degree internal hemorrhoid with ligating the flaccid anus by elevating the anoderm, and the average healing period was 24.2±0.92 when introduced hemorrhoidectomy is based on Milligan-Morgan technique. The former was prominently higher than the latter ($P<0.05$).

According to the normal investigation, the former (97.1%) had prominently higher efficiency rate than the latter (87.9%), and complications and aftereffects were also less ($P<0.05$).

Clinical significance

This method corrects anal transformation and lessen negative outcomes by elevating the anoderm and the dentate line to the original position..

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Conflicts of interest

There are no conflicts of interest.

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