

# Comparison of Milligan Morgan Versus Stapled Hemorrhoidectomy in Patients Attending Tertiary Care Hospital

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## ABSTRACT

**Background and Aim:** Hemorrhoids are common anorectal problems that cause fear by bleeding, pruritus burden, and thrombosis pain. Prolapse and hemorrhoids are managed by stapled hemorrhoidectomy (SH). Initially, Stapled hemorrhoidectomy seemed to be a good alternative for Milligan Morgan (MM) hemorrhoidectomy verified by various studies. However, recent studies found that long-term assessment of stapled hemorrhoidectomy gives poor outcomes in terms of postoperative complications and patient's satisfaction. Therefore, the present study aimed to compare the Milligan Morgan versus stapled Hemorrhoidectomy in patients attending Tertiary Care Hospital.

**Methodology:** This prospective study was carried out on 120 patients at the Department of Surgery Unit-I Sheikh Zayed Medical College Rahim Yar Khan from 1<sup>st</sup> May 2021 to 31<sup>th</sup> April 2022. All the patients of either gender with an age range from 18 years to 60 years after 2<sup>nd</sup> degree hemorrhoids failure of multiple rubber band ligations and 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids were enrolled. Concomitant anal disease patients such as ano-rectal cancer, fissure, fistula, and abscess were excluded. Patients were divided into two categories: Group-I Stapled Hemorrhoidectomy and Group-II Milligan Morgan. Post-operative complications such as stenosis and urinary retention during hospitalization were recorded. All the data were entered and analyzed using SPSS version 25.

**Results:** The overall mean age of Group-I and Group-II was 46.78±12.66 years and 48.91±14.82 years respectively. Each group comprised 60 patients. Out of the SH group, 35 (58.3%) were males and 25 (41.7%) were females. Of the MM Group-II, male and females were 44 (73.3%) and 16 (26.7%) respectively. About 53 (88.3%) patients in Group-I and 32 (53.3%) patients in Group-II had relief from bleeding and other symptoms. The surgical duration in Group-I and Group-II was 22.9 ± 12.9 minutes and 34.8 ± 9 minutes with statistical significance (p=0.000) respectively. The vessel spurting ligation and postoperative hemorrhage was developed in 5 (8.3%) in SH group patients. Post-operative bleeding and intervention was found in 26 (43.3%) patients in Group-II. The prevalence of postoperative pain requiring analgesia was found in 20 (33.3%) in Group-I and 34 (56.7%) in Group-II respectively. After treatment, fecal incontinence was developed in none of the patients in both groups. The postoperative complications such as anal tag, tenderness, bleeding, urinary retention, and wound discharge were higher in Group-II as compared to Group-I with statistical insignificance (p< 0.05).

**Conclusion:** The present study found that hemorrhoids could be effectively treated by Stapled hemorrhoidectomy compared to Milligan-Morgan procedure in terms of postoperative pain, hospital stay, and usage of analgesics, reduced postoperative complications, patient's satisfaction, and time taken for operation. Beside lesser complications, fecal incontinent, severe pain, and other complications could result from stapling technique. Post-operative pain and complete pain relief was significantly lower in MM group. Hospitalization in the SH group was shorter than the MM group. Hemorrhoid recurrence was null in both SH and MM group.

**Keywords:** Hemorrhoid Surgery, Stapled Hemorrhoidectomy, Milligan-Morgan

## INTRODUCTION

Hemorrhoids are common anorectal problems that cause fear by bleeding, pruritus burden, and thrombosis pain. The normal vascular cushion hypertrophy sits within the anus that seals the opening causing blockage of gas or stools. Hemorrhoids transpire in cases where anal canal is covered by tissue prolapses caused by blood vessel engorgement and surrounding connective tissue slackness [1]. Hemorrhoids could be either external or internal. The former is congested aggregation of external vascular plexus of perianal area shielded by perianal skin. However, the later one is initiated from anal canal sub-epithelial plexus above dentate line [2]. As per prolapse degree, internal hemorrhoids might be classified into four degrees which may not present the patient's symptoms severity [3]. Itching, bleeding, prolapse, mucous discharge, pain, and discomfort are the associated symptoms [4]. Anal related dilated vein occurrence is referred to Hemorrhoids. The hemorrhoid's symptoms appear in approximately 5% of the population but one third go for medical treatment [5]. Anal canal and rectum anatomical tissue combination contribute to hemorrhoids tissue [6]. The prevalence of symptomatic hemorrhoids is significantly greater in males compared to females. First and second degree hemorrhoids could be managed by non-operative techniques including a high fiber intake, first defecatory urge consideration, and regular bowel habits. Local anesthesia,

lotions, creams, and suppositories provided symptomatic relief with unproven efficacy [7].

External hemorrhoids, third and fourth degree of internal hemorrhoids, and symptoms alleviation rubber band ligation failure should be treated with surgical hemorrhoidectomy [8]. The Fergusson hemorrhoidectomy included anal mucosa complete closure with continuous absorbable suture through hemostasis and hemorrhoidal tissue [9]. Milligan-Morgan open hemorrhoidectomy is utilized in cases where a completely closed wound is not required due to gangrenous hemorrhoids or circumferential presence. The pedicle ligation is the end of the procedure. Below the dentate line, the sensitive anoderm incorporates severe postoperative pains in both open and closed hemorrhoidectomy [10]. Infrared photocoagulation, Milligan Morgan, Regularization of bowel function, Stapled hemorrhoidectomy, and Sclerotherapy are different treatment modalities for hemorrhoids. The most effective and commonly used surgical technique for hemorrhoids treatment is the Milligan Morgan [11]. In stapled hemorrhoidectomy, a device is inserted into anal canal causing mucosal ring excision interrupting the supply of blood. Stapled hemorrhoidectomy is well-established with low complication rates technique which leads to reduction in hospitalization and postoperative pain. The most prevalent postoperative complication seen was urinary retention with their incidence ranging from 10% to 32% [12]. The reasons for

such complications are rectal packing, spasm and pain, spinal anesthesia usage, and overloaded fluid. Inadequate hemostasis causes postoperative bleeding in 2% to 4% cases [13]. These stapling guns are expensive and less complications were seen in long-term follow-up. The present study aimed to compare the outcomes of stapled hemorrhoidectomy and Milligan-Morgan in hemorrhoids patients presented to tertiary care hospital.

**METHODOLOGY**

This prospective study was carried out on 120 patients at the Department of Surgery Unit-I Sheikh Zayed Medical College Rahim Yar Khan from 1<sup>st</sup> May 2021 to 31<sup>th</sup> April 2022. All the patients of either gender with an age range from 18 years to 60 years after 2<sup>nd</sup> degree hemorrhoids failure of multiple rubber band ligations and 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids were enrolled. Concomitant anal disease patients such as ano-rectal cancer, fissure, fistula, and abscess were excluded. Patients were divided into two categories: Group-I Stapled Hemorrhoidectomy and Group-II Milligan Morgan. Post-operative complications such as stenosis and urinary retention during hospitalization were recorded. Initially surgical procedures such as type and technique details were explained to patients and those who have shown willingness to participate were placed in the Stapled hemorrhoidectomy group. Patients who declined to go through surgical intervention were placed in Milligan-Morgan group. Written informed consent was taken from each individual. Lithotomy positions under spinal anesthesia were followed in both procedures for surgical intervention. All the patients in SH group were properly administered with 50 mg intravenous metronidazole and injection ceftriaxone of 1g. In MM group, no antibiotic was administered.

All the patients underwent detailed history and complete examination including digital rectal examination and proctoscopy. Baseline investigations such as serum urea, CBC, ECG, random blood sugar, serum electrolytes, and X-rays view of chest PA were performed. Postoperative pain and operative time were the two specific parameters measured. Operative time and pain was measured in minutes and Visual assessment Scale. Based on VAS, no pain and maximum pain corresponded to 0 and 10 respectively. Hospital duration was measured in days. The presence or absence of other postoperative complications such as tenderness on DRE, stenosis, anal tag, infections, and anal fissure were observed with 3-months follow up. SPSS version 25 was used for data analysis. Quantitative variables are expressed in terms of means and standard deviation. Qualitative variables are described as frequency and percentages. Chi-square test ( $\chi^2$ ) and student's t-test was used to compare the mean values of both groups. All the data analysis was carried out with <5% level of significance.

**RESULTS**

The overall mean age of Group-I and Group-II was 46.78±12.66 years and 48.91±14.82 years respectively. Each group comprised 60 patients. Out of the SH group, 35 (58.3%) were males and 25 (41.7%) were females. Of the MM Group-II, male and females were 44 (73.3%) and 16 (26.7%) respectively. About 53 (88.3%) patients in Group-I and 32 (53.3%) patients in Group-II had relief from bleeding and other symptoms. Surgery duration in Group-I and Group-II was 22.9 ± 12.9 minutes and 34.8 ± 9 minutes with statistical significance (p=0.000) respectively. The vessel spurting ligation and postoperative hemorrhage was developed in 5 (8.3%) SH group patients. Post-operative bleeding and intervention was found in 26 (43.3%) patients in Group-II. The prevalence of postoperative pain requiring analgesia was found in 20 (33.3%) in Group-I and 34 (56.7%) in Group-II respectively. After treatment, fecal incontinence was developed in none of the patients in both groups. The postoperative complications such as anal tag, tenderness, bleeding, urinary retention, and wound discharge was higher in Group-II as compared to Group-I with statistical

insignificance (p< 0.05). The age-wise distribution of both groups is shown in Figure =1. Gender's distribution is illustrated in Figure-2. Table-I shows the duration of surgery in both groups. Figure-3 depicts the pain score of both groups. Analgesic administration for both SH and MM groups are compared in Table-II. Comparative analysis of postoperative bleeding is shown in Table-III. Figure-3 illustrates the postoperative pain comparison in both groups. Figure-4 depicts the comparison of urinary retention in both groups.

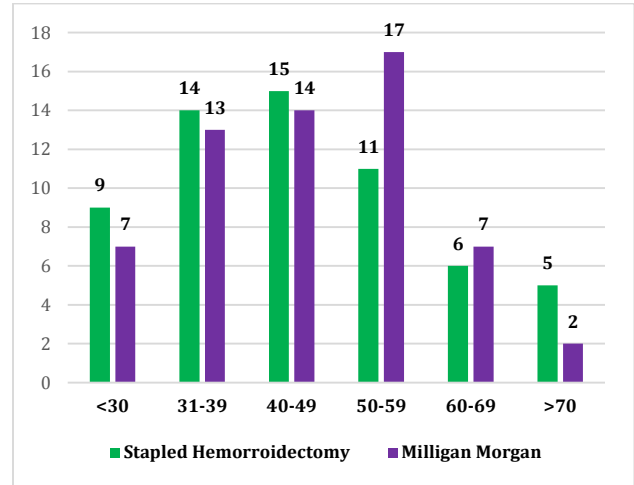


Figure-1: Age-wise distribution

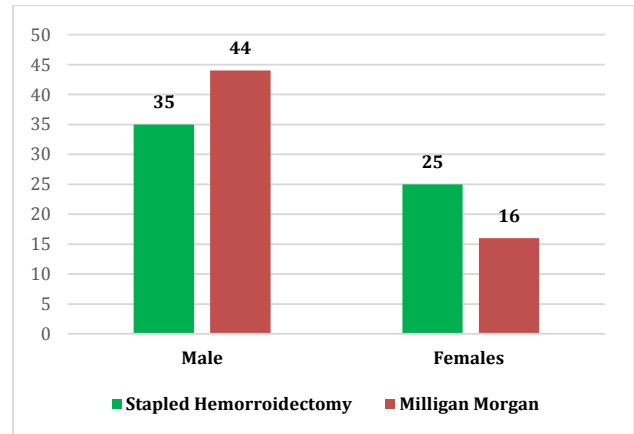


Figure-2: Gender's distribution

Table-1: Duration of surgery in SH and MM group.

Duration (minutes)	Stapled Hemorrhoidectomy	Milligan Morgan
<20	6 (10%)	Nil
20-25	22 (36.7%)	Nil
25-30	23 (38.3%)	21 (35%)
30-35	9 (15%)	26 (43.3%)
>35	Nil	13 (21.7%)

Table-2: Comparison of analgesic administration for both SH and MM groups

Analgesic administration	Stapled hemorrhoidectomy		Milligan Morgan		P-Value
	24 Hours	48 Hours	24 Hours	48 Hours	
Step I	45 (75%)	55 (91.7%)	8 (13.3%)	22 (36.7%)	<0.001
Step II	15 (25%)	5 (8.3%)	38 (63.3%)	32 (53.3%)	<0.001
Step III	0	0	14 (23.3%)	16 (26.7%)	<0.001

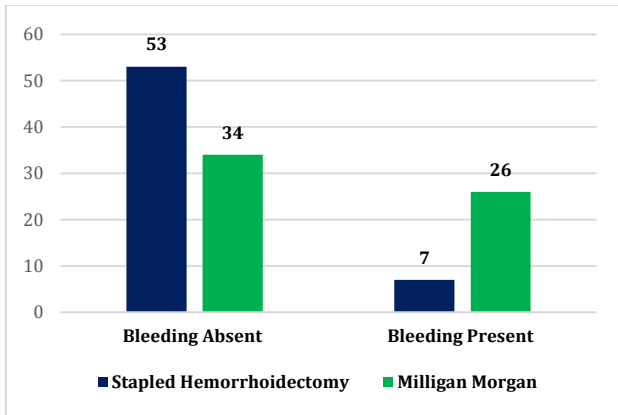


Figure-3: Comparative analysis of postoperative bleeding

Table-3: Comparative analysis of postoperative Pain

Pain	Stapled Hemorrhoidectomy	Milligan Morgan
Mild	38 (63.3%)	12 (20%)
Moderate	22 (36.7%)	34 (56.7%)
Severe	0	14 (23.3%)
Total	60 (100%)	60 (100%)

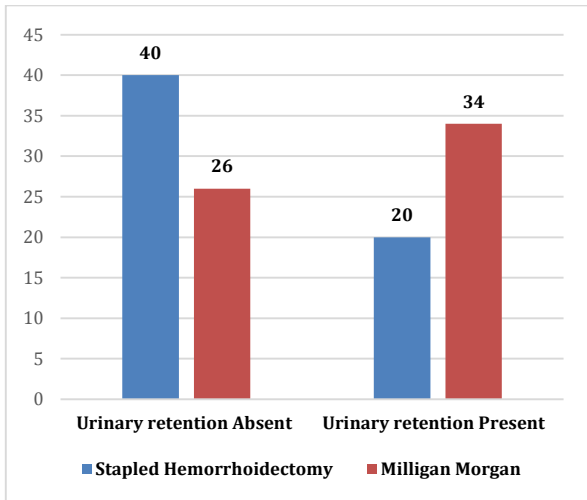


Figure-4: depicts the comparison of urinary retention in both groups.

## DISCUSSION

The present study focused on comparison of stapled hemorrhoidectomy versus Milligan Morgan in patients attending tertiary care hospitals. Many studies proposed hemorrhoids etiopathogenesis including anal canal mucosal prolapse, anal canal varicosities, and hemorrhoidal vascular tissue hyperplasia in upper and middle hemorrhoidal vessels [14]. The present study investigated 120 hemorrhoids patients with an age range from 18 years to 60 years. Stapled hemorrhoidectomy was demonstrated by numerous studies and found less postoperative complications and quick recovery as an outcome [15, 16]. In the present study, the majority of patients were male compared to other studies. A previous study by P. He et al, [17] found male to female ratio was 1:1.9. This might be due to the fact that mostly women with hemorrhoids fail to seek medical assistance due to culture and social factors.

In the stapled hemorrhoidectomy group, only 7 (11.7%) patients had postoperative bleeding due to defects in the staple line controlled by absorbable hemostatic sutures. However, 26 (43.3%) patients had postoperative bleeding in Milligan Morgan groups controlled by resuturing ( $p > 0.05$ ). These findings of the current study are comparative to other studies results [18, 19].

Milligan Morgan technique was significantly slower than stapled hemorrhoidectomy ( $34.8 \pm 9$  minutes and  $22.9 \pm 12.9$  minutes);  $p < 0.001$ . This is similar to other studies results [20, 21].

Pain scores were significant on visual analogue scale observed in SH versus MM groups at different intervals such as 24 hours at  $p < 0.01$  and 48 hours at  $p < 0.05$ . A previous study reported that postoperative day pain was significantly lower [22]. However, in MM group, the analgesic requirement was higher than SH group as found in the present study.

Post-surgical hemorrhoidectomy complications are significantly associated with postoperative management issues and surgical technique. In the current study, patients were followed for 3 months postoperatively. The prevalence of urinary retention presence was mostly observed in both groups and could be caused by rectal packing, bulky dressing, spinal anesthesia, rectal pain, fluid overload, and spasm. H. Han et al [23] reported similar results with lower prevalence of complications 20%.

The frequency and degree of hemorrhoids affecting the operative time is still to be determined, because more time is needed for hemostasis, sutures applications and dissection. According to V. Ripetti et al [24] found that purse-string suture number had significant influence on operative time. Postoperative wound infection was found in none patients who underwent SH or MM procedure. In contrast, H.L. Peng et al, [25] found a single case of wound infection. This complication could be caused by a variety of factors, including the surgery itself. This was observed in patients who had large, prolapsed haemorrhoids. The raw area left after surgery was most likely large, increasing susceptibility to infection. Furthermore, patients who are afraid of wounds in the peri-anal area may fail to take adequate hygienic precautions, resulting in infection in that area.

Late complications include incontinence, anal stenosis and fissure, recurrence, and prolapse. During the follow-up, no significant differences were observed. These complications are likely to necessitate long-term monitoring. When compared to MMH results, SH patients had a shorter hospital stay, resulting in an earlier return to work. Other similar studies have yielded similar results [26, 27]. The absence of symptoms, as well as the improved appearance of the anal canal, has a positive psychological effect on these patients, resulting in satisfaction and an early return to work.

## CONCLUSION

The present study found that hemorrhoids could be effectively treated by Stapled hemorrhoidectomy compared to Milligan-Morgan procedure in terms of postoperative pain, hospital stay, and usage of analgesics, reduced postoperative complications, patient's satisfaction, and time taken for operation. Beside lesser complications, fecal incontinent, severe pain, and other complications could result from stapling technique. Post-operative pain and complete pain relief was significantly lower in MM group. Hospitalization in the SH group was shorter than the MM group. Hemorrhoid recurrence was null in both SH and MM group.

## REFERENCES

1. Ashwani K, Manisha A, Lal RS, Tarun K, Sunita G (Miligan Morgan) hemorrhoidectomy versus stapled hemorrhoidectomy: A comparative study. *Br J Med Med Res.* 2017;21(12):1-7.
2. Chalkoo M, Okumura K, Otieno ES. Open (Milligan Morgan) haemorrhoidectomy versus stapled haemorrhoidectomy: a comparative study. *Br J Medic Med Res.* 2017;21(12):1-7
3. Nikooyan P, Sardo HM, Poursaeidi B, Zaherara M, Ahmadi B. Evaluating the safety, efficacy and complications of electrotherapy and its comparison with conventional method of hemorrhoidectomy. *Gastroenterol Hepatol Bed Bench* 2016;9:259-67.
4. Brown SR. Haemorrhoids: An update on management. *Ther Adv Chronic Dis* 2017;8:141-7.
5. Watson AJ, Cook J, Hudson J, Kilonjo M, Wood J, Bruhn H, et al. A pragmatic multicentre randomised controlled trial comparing stapled haemorrhoidectomy with traditional excisional surgery for haemorrhoidal disease: The eTHoS study. *Health Technol Assess* 2017;21:1-224.

6. Kishore PK, Sriithi BM, Obulesu G. Comparative study between stapler and open hemorrhoidectomy in the management of grade III/IV hemorrhoids. *Int Arch Integr Med* 2016;3:218-21.
7. Sachin ID, Muruganathan OP. Stapled hemorrhoidopexy versus open hemorrhoidectomy: A comparative study of short term results. *Int Surg J* 2017;4:472-8.
8. Daniel R, Jose MR, SF Paneerselvam P, et al. Open Haemorrhoidectomy Versus Stapled Haemorrhoidopexy- A Prospective Study In A Tertiary Hospital In South India (2017): 3939-3942.
9. Bhandari RS, Lakhey PJ, Singh YP, et al. Stapled haemorrhoidectomy versus openhaemorrhoidectomy: a prospective comparative study 2015 (2015): 5
10. Bhandari RS, Lakhey PJ, Singh YP, Mishra PR, Singh KP. Stapled haemorrhoidectomy versus open haemorrhoidectomy: A prospective comparative study. *J Chitwan Med Coll* 2014;4:7-11.
11. Chalkoo M, Ahangar S, Awan N, Dogra V, Mushtaq U, Makhdoomi H. An early experience of stapled hemorrhoidectomy in a medical college setting. *Surg Sci* 2015;6:214-20.
12. D.O. Jacobs Hemorrhoids: what are the options in 2018? *Curr. Opin. Gastroenterol.*, 34 (1) (2018), pp. 46-49
13. M. Guttenplan The evaluation and office management of hemorrhoids for the gastroenterologist *Curr. Gastroenterol. Rep.*, 19 (7) (2017), p. 30
14. T. Mott, K. Latimer, C. Edwards Hemorrhoids: diagnosis and treatment options *Am. Fam. Physician*, 97 (3) (2018), pp. 172-179
15. R.S. Sandler, A.F. Peery Rethinking what we know about hemorrhoids *Clin. Gastroenterol. Hepatol.*, 17 (1) (2019), pp. 8-15
16. B.R. Davis, S.A. Lee-Kong, J. Migaly, D.L. Feingold, S.R. Steele The American Society of Colon and Rectal Surgeons clinical practice guidelines for the management of hemorrhoids *Dis. Colon Rectum*, 61 (3) (2018), pp. 284-292.
17. P. He, H.L. Chen Meta-analysis of randomized controlled trials comparing procedure for prolapse and hemorrhoids with Milligan–Morgan hemorrhoidectomy in the treatment of prolapsed hemorrhoids *Chin. J. Gastrointest. Surg.*, 18 (12) (2015), pp. 1224-1230.
18. F.M. Xie, Y.H. Jiang, H.T. Gu, Y.X. Wang Comparison of tissue-selecting therapy stapler and procedure for prolapse and hemorrhoids in the treatment of mixed hemorrhoids: systematic review *World Latest Med. Inf.*, 19 (35) (2019), pp. 44-50.
19. T.C. Du, S.J. Quan, T. Dong, Q. Meng Comparison of surgical procedures implemented in recent years for patients with grade III and IV hemorrhoids: a network meta-analysis *Int. J. Colorectal Dis.*, 34 (6) (2019), pp. 1001-1012.
20. P.A. Lehur, A.S. Didnée, J.L. Faucheron, G. Meurette, P. Zerbib, L. Siproudhis, et al. Cost-effectiveness of new surgical treatments for hemorrhoidal disease *Ann. Surg.*, 264 (5) (2016), pp. 710-716.
21. B.J. Shea, B.C. Reeves, G. Wells, M. Thuku, C. Hamel, J. Moran, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both *BMJ*, 358 (2017), p. j4008.
22. Y. Fang Clinical observations on the treatment of severe internal hemorrhoids between tissue selection therapy and procedure for prolapse and hemorrhoids *Chin. J. Urban Rural Ind. Hyg.*, 33 (1) (2018), pp. 127-128
23. H. Han Comparison of the effect of procedure for prolapse and hemorrhoids with Milligan–Morgan therapy in the treatment of severe hemorrhoids *J. China Prescrip. Drug.*, 15 (11) (2017), pp. 117-118.
24. V. Ripetti, V. La Vaccara, S. Greco, A. Arullani A randomized trial comparing stapled rectal mucosectomy versus open and semiclosed hemorrhoidectomy *Dis. Colon Rectum*, 58 (11) (2015), pp. 1083-1090
25. H.L. Peng, R.H. Lin Clinically comparative analysis of tissue-selecting therapy versus procedure for prolapse and hemorrhoids in treatment of severe mixed hemorrhoid *Mod. Med. Health*, 32 (19) (2016), pp. 2966-2967.
26. Pandey A, Masood S, Chauhan S, Gupta A, Kulshrestha MR. Stapled haemorrhoidopexy in India – worthy of its cost? *Sch Acad J Biosci.* 2017;5:178–182
27. Agrawal S, Chopra S. Comparative study between conventional hemorrhoidectomy versus stapled hemorrhoidopexy at Ja Group of Hospitals Gwalior *IOSR J Dent Med Sci.* 2016;15:69–94