

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

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### ABSTRACT

Ayurveda surgeries are mostly nowadays are concentrated on management of ano-rectal surgical diseases by use of various methods of ancient Ayurveda techniques like *Kshara*, *Ksharasutra*, *Agnikarma*, *Jalaukavacharana* etc. These methods are safer in comparison to contemporary methods of ano-rectal surgeries. But it can't be ignored that even these methods are associated to various minor or major intra or post-operative surgical complications. That is why these complications should be known in details and managed accordingly. In this article various clinical based experiences on complications following ano-rectal surgeries related to peri-operative procedures are explained along with their management strategies. Most of those complications are minor and can be managed in simple clinical settings and in the rarest of the case major complications can happen which threatens the life of the patient such cases should be handled with utmost care in major clinical and surgical settings. The long term complications associated to Ayurveda management of such cases are also taken into consideration and their method of prevention and management are also mentioned. The complications associated to local anesthetic agents used in the procedures are also a part of these complications hence such complications and management are needed to be studied by every surgeon doing ano-rectal surgeries using various methods of Ayurveda. Such complications are not mentioned in details anywhere that mandated us to present such associated complications of Ayurveda surgery. Such complications can't be ignored and should be managed accordingly for the optimal care of the patients.

**KEYWORDS:** Anorectal; Ayurveda; Complications; Management; Surgery

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### INTRODUCTION

Ayurveda is widely famous for surgeries of ano-rectal region using different ancient methods for surgical correction of different diseases. These methods, most of the times are not associated with major intra-operative and post-operative complications but some cases of complications can't not be ignored and should be studied and managed properly. In Ayurveda, the surgical procedures are of minimal invasive type and use of para-surgical methods makes them even safer. The need of using modern methods of anaesthesia and integration to modern surgical methods to better and timely management of surgical diseases can sometimes be associated to complications. Various minor to major complications can occur in some of the circumstances, these should be handled carefully and needful management should be done. In Ayurveda most of the times *Kshara*, *Ksharasutra*, *Agnikarma*, *Jalaukavacharana* etc are used in managing

anorectal diseases and are not usually associated to troublesome problems but rare chances of major complications can't be ignored hence management should be optimum. Here are some methods of Ayurveda which are used in managing anorectal surgical diseases with their probable complications and methods of management listed below.

### KSHARAKARMA

It can be done in cases of Arsha <sup>[1]</sup> (haemorrhoids); rectal prolapse <sup>[2]</sup>; post-operative wound of fistula-in-ano <sup>[3]</sup>; pilonidal sinus <sup>[4]</sup>; fissure-in-ano <sup>[5]</sup>; post-operative peri-anal abscess wound. <sup>[6]</sup> There are various intra-operative and post-operative complications that can occur after the process of *Ksharakarma*, these are mentioned as follows:

**1. Bleeding:** Bleeding can occur while doing the *Ksharakarma* also after the procedure. Mild bleeding to

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

severe haemorrhage can occur which may occur due to improper techniques sometimes or also due to over corrosive action of the *Kshara* locally which may involve blood vessels too. Such types of bleeding can be

managed by proper anal packing or sometimes fluid replacements, blood transfusion, suturing of the pedicles, electrocauterization are needed.



Figure 1: Reactionary haemorrhage in a patient after *Ksharakarma*

**2. Infection:** Not using proper sterilization techniques while performing the procedure, no proper coverage of anti-microbial agents post-operatively, improper post-operative wound care and dressings may lead to peri-anal

sepsis that may be fatal sometimes due to the chances of portal pyaemia. Use of boiled lukewarm water sitz bath post-operatively along with use of appropriate antibiotics and wound dressings prevents infections.



Figure 2: Infected and swollen intero-external haemorrhoids after *Ksharakarma*

**3. Anaphylaxis:** Some people may feel hypersensitive reactions to *Kshara*, used in the procedure. If symptoms like itching, rashes over that area are seen then the procedure is immediately stopped and anti-allergens are used to manage the condition, and sometimes use of Adrenaline injection through intra-venous routes are needed. Anaphylaxis may sometimes is due to the anesthetic agent and is managed in a similar manner.

**4. Pain:** Mild burning type of pain is anticipated after the procedure but excessive pain if present should be treated properly. Excessive pain may be present due to abscess formation, thrombosis, infections, and lacerations etc. in post-operative period. The cause for excessive pain should always be looked for and managed accordingly. Mild post-operative burning sensation is managed by analgesics, Sitz bath and *Matra Basti*.

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

5. **Anal stricture:** Post-operative anal strictures of mild degree are anticipated in most of the cases. In some cases severe anal stricture may occur due to improper post-operative wound care. This may lead to chronic constipation and even fecal impaction in some patients. Manual anal dilatation before the procedure and during dressing post-operatively reduces the chances of anal stricture. Also, the *Kshara* is applied over the affected and required parts only and should be kept for there for a limited time so that it doesn't overact there. Very rarely ano-rectal reconstructions are required.
6. **Vaso-vagal Shock:** Vaso-vagal shock may occur in some cases due to improper and rough handling of the anal canal or sometimes due to the effect of *Kshara* itself. Blood pressure in such cases decreases sharply along with bradycardia. This is managed with foot end elevation of the patient (Shock position), IV fluids and IM or IV use of injection Atropine.
7. **Excessive anal discharges:** Some patient may have excessive mucous or sero-sanguinous discharge per rectum after *Kshara* application due to excessive local tissue irritation cause by *Kshara*. This is usually self-limiting and sometimes treatment is needed for which anti-inflammatory medicines along with *Matra Basti* is used on daily basis.
8. **Recurrence:** When *Kshara* is applied insufficiently or affected tissues are left out or *Kshara* is kept for a short duration or ineffective *Kshara* if used may lead to recurrence after *Ksharakarma*. So, to prevent recurrences *Kshara* of good quality is used over the affected areas properly and kept there for atleast 1-2 minutes so that action of *Kshara* takes place properly. Recurrent rectal prolapse and recurrent haemorrhoids after *Ksharakarma* are common so, should be managed accordingly.
9. **Urinary retention:** It may occur sometimes due to pain, improper tissue handling, fluid overload, spinal anaesthesia or using excessive amount of *Kshara* outside the anal cavity. It is most of the time is self limiting where careful observation is all that is needed. Sometimes pain management, supra-pubic hot and cold application and urinary catheterization is needed.
10. **Anal tags:** Swelling after *Ksharakarma* may sometimes cause development of anal tags around anal verge. These tags need no treatment but for cosmetic purpose these can be excised using scissors or electrocautery or *Ksharasutra* application.



Figure 3: Perianal anal tags formed after *Ksharakarma*

11. **Anal fissure formation:** Anal fissures may be formed as a result of constipation or stricture after the *Ksharakarma*. Improper tissue handling and improper post-operative dressing may sometimes cause anal fissure formation. This is managed by daily twice to thrice sitz bath using boiled lukewarm water, local use of *Jatyadi Taila* and use of laxatives.
12. **Pruritus ani:** Anal discharges may cause irritation and pruritus around anal verge which is managed by proper sitz bath and local application of ointments.
13. **Fistula Formation:** Infections may cause abscess formation that may ultimately lead to anal fistula formation which can be managed by *Ksharasutra* application.
14. **Chronic pain synd**
15. **rome:** It may occur in some patients without exact cause and mechanism. This can be managed by *Matra Basti* and sitz bath but use of analgesics or anti-spasmodics may be needed in some cases.

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

### **KSHARASUTRA:**

*Ksharasutra* is used in the management of various anal fistulas [7], pilonidal sinus [8], haemorrhoids [9], sentinel tags [10], anorectal polyps [11], condyloma acuminata [12], and hypertrophied anal papillae. [13] Complications related to *Ksharasutra* application in intra and post-operative periods include:

1. **Excessive pain:** Some patients may feel splitting or cutting type of pain after *Ksharasutra* application due to mechanical pressure of thread itself or by chemical action of the medicines coated over the surgical thread. *Ksharasutra*, so should be tied loosely in cases of anal fistula and pilonidal sinus in initial phases. Pain can be managed by oral or IM or IV use of analgesics, cold or warm sitz bath, wound dressing.

2. **Bleeding:** Bleeding may occur in cases of haemorrhoids if slippage of *Ksharasutra* occurs due to improper ligation and sometimes due to infection. In cases of anal fistula and pilonidal sinus excessive tight tying of *Ksharasutra* may lead to more local tissue damage and bleeding. Bleeding is managed by anal packing, wound packing using adrenaline solution sometimes fluid replacements, blood transfusion, suturing of the bleeding points, electrocauterization are needed.
3. **Anaphylaxis:** Hypersensitivity reactions may occur to the medicines coated in the *Ksharasutra*. That may lead to itching, rashes over the affected part and in the rarest of circumstances whole body is affected that may cause bronchospasm and generalized body rashes. In such cases use of *Ksharasutra* is avoided, anti-allergens along with steroids and adrenaline are used.



Figure 4: Anaphylactic rashes seen after local anaesthesia in a patient with Pilonidal sinus

4. **Infections:** Though *Ksharasutra* has the coatings of the medicines which are anti-microbial activity hence chances of infections are rare. Infections may occur in wounds created by the *Ksharasutra* due to unsterilized techniques used during application of *Ksharasutra*.

Improper wound dressing post-operatively and not doing sitz bath regularly may also account for the infections. . Use of boiled lukewarm water sitz bath post-operatively along with use of appropriate antibiotics and wound dressings prevents infections.



Figure 5: Abscess formation adjacent to fistula-in-ano after *Ksharasutra* application



Figure 6: Infected and swollen haemorrhoidal mass after *Ksharasutra* application

5. **Vaso-vagal shock:** Vaso-vagal may occur in some cases due to over stimulation of the anal area that causes excitation of vagus nerve leading to drop in blood

pressure and also in heart rate. This is managed with foot end elevation of the patient (Shock position), IV fluids and IM or IV use of injection Atropine.

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

- 6. Foreign body sensation:** Patients may feel foreign body sensation due to presence of *Ksharasutra* in perianal region that may irritate some of the patients. So, for this reason too *Ksharasutra* is tied in anal region loosely initially and gradually made tighter. Proper counseling of the patients is also a key in such conditions.
- 7. Ano-rectal stricture:** Use of multiple *Ksharasutra* at once around anal orifice and internally may sometimes cause ano-rectal stricture due to improper wound contractions post-operatively. Simple ligation to haemorrhoidal masses without separating it with external and internal sphincters may cause spasm of sphincters leading ultimately to stricture formation. Also creating big wounds around the anal region is also a cause of stricture. Proper tissue handling in operative phase,

creating small wounds, use of as less number of *Ksharasutra* as possible, proper anal dilataion before any ano-rectal surgeries are considered to prevent ano-rectal strictures. In some cases use of anal dilators may be needed to correct the strictures. Very rarely ano-rectal reconstructions are required.

- 8. Recurrence:** In cases of Fistula-in-ano, *Ksharasutra* should address the anal crypts or else recurrence occurs invariably. In cases of Pilonidal sinus hairs if not removed completely from the track chances of recurrences are very high. Haemorrhoidal masses if not tied properly from the bases left tissues may cause recurrence. In cases of sentinel tag, if fissure is not treated properly and only sentinel tag is tied by *Ksharasutra* may cause recurrence of sentinel tag.



Figure 7: Recurrent Fistula-in-ano after *Ksharasutra* application

- 9. Urinary retention:** Urine retention may occur as a result of excessive pain, use of multiple *Ksharasutra*, rough tissue handling, fluid overload and spinal anaesthesia. It is managed by cold and hot application alternatively in supra-pubic region; pain management should be done if it is due to pain; sometimes urinary catheterization is needed.

- 10. Anal tags:** Anal tags may be formed just distal to haemorrhoidal mass due to incomplete removal or due to irritation by *Ksharasutra*. These tags need no treatment but for cosmetic purpose these can be excised using scissors or electrocautery or *Ksharasutra* application.



Figure 8: Anal tags formed after application of *Ksharasutra* in internal haemorrhoids

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

- 11. Pruritus ani:** Due to local irritation by *Ksharasutra* and also by purulent discharge that comes out of the fistula track pruritus may occur which is managed by proper sitz bath and local application of ointments.
- 12. Fecal incontinence:** Use of multiple *Ksharasutra* damaging external sphincters or applying *Ksharasutra* at or above the ano-rectal ring may cause fecal incontinence. Most of the fecal incontinence is

temporary and need only kegel exercises in the rarest of situations sphincter repair may be needed.

- 13. Fournier's gangrene:** It may occur as a result of excessive severe peri-anal sepsis after *Ksharasutra* application. This may lead to septic shock and high mortality rate also therefore should be managed by necrosectomy, IV broad spectrum antibiotics and proper drainage of infected tissues.



Figure 9: Initial stage of Fournier's gangrene seen after *Ksharasutra* application in Fistula-in-ano

### AGNIKARMA:

It is usually done for sentinel tags [14], condyloma acuminata [15], anal fistula excision [16], external haemorrhoids [17] etc. Following are some complications of the *Agnikarma*:

- 1. Excessive damage to tissues:** Tissues can sometimes be damaged aggressively while using *Agnikarma* that may lead to delayed wound healing. To prevent delayed wound healing the heat should be of appropriate intensity according to tissues and affected or required parts are cauterized by *Agnikarma*.
- 2. Infection:** Infection at the site of *Agnikarma* may occur sometimes which can be managed with proper antibiotics coverage, sitz bath and wound dressing.
- 3. Anal stenosis:** When *Agnikarma* is performed deep around the anal verge spasm of anal canal and pain may lead to anal stenosis which is managed by regular anal dilatations and sometimes reconstructions may be needed.

### JALAUKAVACHARANA:

It can be done in thrombosed external haemorrhoids [18], perianal abscesses [19], perianal sepsis [19] and infected wounds. [20, 21, 22] Few complications may occur in such conditions which are as follows:

- 1. Severe itching:** Usually *Jalauka* used are non-poisonous which do not cause any pain and itching sensation but some patients may complain the itching sensation even after application of non-poisonous *Jalauka*. If severe

itching occurs while doing the *Jalaukavachara* then *jalauka* should be removed immediately. When needed, oral or IV anti-histaminics can be used.

- 2. Bleeding from site of *Jalauka* application:** It may occur due to anti-coagulant property of Hirudin and other similar chemicals present in saliva of the *Jalauka*. Some patients might have been taking anti-coagulants like Aspirin, Clopidogrel, Warfarin etc which may precipitate the bleeding. Patients taking such medicines are advised not to take medicines for 3 days prior to the procedure and 3 days after the procedure.

Bleeding is most of the time is minor and is managed by wound packing only, If bleeding is not stopped after a prolonged time, thermal cauterization, suturing etc can be done or IV coagulants can be given.

- 3. Abscess formation:** Sometimes the part where *Jalauka* was applied may be infected which on later stages can cause abscess formation. Such abscesses are managed with incision and drainage followed by pus culture & sensitivity test then appropriate antibiotics should be prescribed.

### CONCLUSION

Anorectal surgeries are major parts of the surgeries done using Ayurveda surgical methods. These methods are most of the times associated with very less intra-operative and post-operative complications. These complications if they occur also can be managed effectively using minor procedures and

## Critical Review on Intra-Operative and Post-Operative Complications in Ayurveda Ano-Rectal Surgeries and Their Management

need of major management strategies are not needed usually. Use of *Ksharakarma*, *Ksharasutra*, *Agnikarma*, *Jalauavachara* etc comprises major part of the management of anorectal conditions in Ayurveda. These methods most of the time are very safe procedures but in certain circumstances can cause minor or major intra or post-operative complications. Quality of the *Kshara*, *Ksharasutra* should be optimum and peri-operative care should be ideal to prevent complications to happen. When complications do occur, prompt identification and elimination of the offending pathology can limit the long-term impact on the patient's quality of life.

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