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REVIEW OF HAEMORRHOIDS, INCLUDING QUALITY OF LIFE (QOL) AND ASSOCIATED CONTEMPORARY TREATMENTS

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ABSTRACT

In adults, haemorrhoids or piles are a frequently issued condition. In their lifetime, more than half of men and women 50 years of age and older may experience haemorrhoid symptoms. Although haemorrhoids in children are uncommon, recent findings have indicated that they can occur in both young children and the elderly. Haemorrhoids are intra-anally situated enlargements of the anal cushions that often contribute to anal continence. when haemorrhoids create symptoms, the condition is referred to as hemorrhoidal illness. The common symptoms of haemorrhoids include bleeding, itching, soiling, and pain. When hemorrhoidal tissue prolapses, digital replacement is required. Most people with bothersome haemorrhoids respond well to conservative therapy or outpatient procedures like rubber band ligation. In the event that non-surgical methods are unsuccessful, surgery may be a possibility. A person's quality of life (QOL) is a significant, non-specific aspect of their subjective perception of wellbeing. Along with the patients' overall health, it also takes into account their physical, mental, and social well-being. This review study discusses the pathophysiology, causes, risk factors, combination treatments, and quality of life issues associated with haemorrhoids.

KEYWORDS: Haemorrhoids, Histology, Causes, Risk factors, Pathophysiology, Treatments, Quality of life (QOL).

INTRODUCTION

The term "haemorrhoid disease" rather than "haemorrhoids" should be used to refer to the pathological condition marked by rectal bleeding, mucosal prolapse, anal itch, and occasionally thrombosis and pain because haemorrhoid cushions are a physiological

component of the anal canal where they contribute to the maintenance of faecal continence.[1,2] It's interesting to note that epidemiological evidence does not support the empiric role of hot food consumption. In actuality, despite the widespread use of hot food (chilli pepper) in these nations' diets, the prevalence of haemorrhoid disease is not higher there. Instead, it has the same geographical spread as constipation Haemorrhoids have been around since the beginning of time. Pre-Christian literature has made references to haemorrhoids, and proctology was a thriving field in ancient Egypt.[3] Haemorrhoids, which are characterized as the symptomatic expansion and distal misplacement of the typical anal cushions, are a fairly frequent anorectal disease. They are a significant medical and economical issue that affect millions of individuals worldwide. Hemorrhoidal development has allegedly been caused by a number of conditions, including constipation and extended straining. Hemorrhoidal disease is characterized by aberrant vascular channel dilatation and distortion, as well as degenerative alterations in the connective tissue that supports the anal cushion.[4] Arteriovenous vascular plexes known as haemorrhoids surround the distal rectum and anal canal. All people have haemorrhoids from birth, and they become symptomatic when they become larger, inflamed, thrombosed, or prolapsed. A number of variables, including venous engorgement and weakening of the connective tissue framework that supports these vascular structures and the underlying mucosa, contribute to the development of symptomatic haemorrhoids.[5] Constipation and, less frequently, diarrhoea are the conditions that predispose to symptomatic haemorrhoids the most frequently. The two signs of haemorrhoids that are most frequently associated with internal haemorrhoids are bleeding and prolapse. External haemorrhoids that have thrombosis expand painfully. Changes in diet and bowel habits help the majority of people with symptomatic haemorrhoids. Internal haemorrhoids with symptoms that don't respond to bowel management programmes may be treatable in-office using infrared blood coagulation or rubber band ligation.[6] Typically, the Goligher classification system, which is based on the degree of prolapse through the anus, is used to classify the severity of hemorrhoidal illness. This classification method assigns Grade 1 to haemorrhoids that bleed but do not prolapse; Grading of haemorrhoids includes Grade 2 (which can prolapse when straining but spontaneously reduces or reverses), Grade 3 (which can prolapse after straining or exertion but can be manually pushed back into the anal canal), and Grade 4 (which is permanently prolapsed and cannot be reduced manually).[6,7] 11% of respondents (1725/16015) experienced haemorrhoids, with 71% of respondents having low-severity disease. Participants with hemorrhoidal illness had higher comorbidities (mean 3.1 vs 1.3) and comprised more pregnant women (81 vs 68%), compared to the general

population. Pain (60%) bleeding (47%) and discomfort (43%) were the most frequent initial signs or symptoms. Patients with haemorrhoids who sought medical advice were more likely to receive treatments and take medicines. In the adult population, hemorrhoidal illness affects 11% of people, typically in milder forms.[8] Consequently, conditions that cause increased intra-abdominal pressures, such as pregnancy, obesity, constipation, straining while defecating, sitting for a long time on the toilet seat, and frequent use of the Valsalva manoeuvre (for example, to relieve back pain in ankylosing spondylitis) as well as chronic cough, are risk factors for hemorrhoidal disease.[9–11] Haemorrhoids are typically divided into internal and exterior categories based on where they are located. The columnar epithelium that covers internal haemorrhoids, which appear above the dentate line, differs from the squamous epithelium that covers external haemorrhoids, which appear below the dentate line. Haemorrhoids patients are typically asymptomatic, although common symptoms include bleeding with or without faeces, swelling, minor discomfort or irritation, and pruritus. Many haemorrhoid patients can be successfully treated with conservative medicine, ointments, and surgical therapy for patient, even if some individuals require surgery.[12]

TYPES OF HAEMORRHOIDS

- **Haemorrhoids come in two varieties**

There are internal and external haemorrhoids: Internal haemorrhoids are located inside the anal canal and are mucosally encased. In the majority of patients, there are three columns of haemorrhoids-two on the right and one on the left. The variations are numerous, though, and some people have more than three bundles. The anoderm and skin conceal external haemorrhoids, which occupy the inferior portion of the anal canal. Internal haemorrhoids are located inside the anal canal and are mucosally encased. Three columns of haemorrhoids-two on the right and one on the left-can be seen in the majority of patients. The variations are numerous, though, and some people have more than three bundles. Anoderm and skin protect the inferior portion of the anal canal where external haemorrhoids are located.[13] External haemorrhoids can be circumferential or present in one or more quadrants. Haemorrhoids' precise origin is unknown. The upright posture of people, ageing, pregnancy, inheritance, constipation or chronic diarrhoea, and spending too much time on the toilet (such as reading or straining) have all been identified as contributory factors.[14]

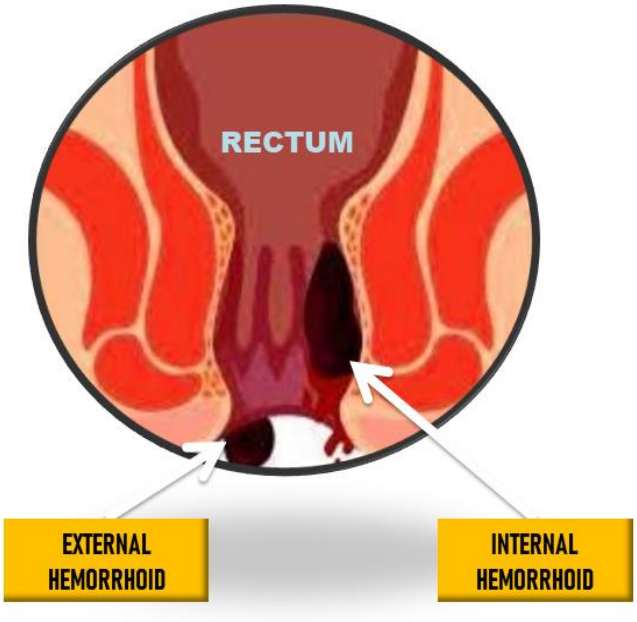

Fig.1: Haemorrhoids' several types.

HISTOLOGY

All people have hemorrhoidal tissue, which is a cushion of tissue within the anal canal that contains blood vessels and supporting tissue consisting of muscle and elastic tissue. Haemorrhoids are often categorized based on their anatomical origin. External haemorrhoids have an epithelial component and start below the dentate line, whereas internal haemorrhoids are made up of superfluous mucus membrane of the anal canal and have their origin above the dentate (anorectal) line. Based on how far the tissue descends into the anal canal, internal haemorrhoids, or real haemorrhoids, are further rated. Haemorrhoids in the first degree "The mucosa hardly prolapses, but under extreme tension, it can become trapped by the anal sphincter shutting. Therefore, venous congestion occasionally happens, resulting in pain and/or bleeding.[15] Haemorrhoids of the second order the patient complains of an evident lump when the mucosa protrudes further, but unless thrombosis develops, it spontaneously and quickly goes away following defecation. Haemorrhoids in the third degree "Chronic hemorrhoidal disease, the persistent prolapsing produces dilatation of the anal sphincter, and the haemorrhoids protrude with little provocation and typically require manual replacement".[16] Haemorrhoids of the fourth order Unless the patient replaces them, lies down, or raises the foot of the bed, these are frequently referred to as external haemorrhoids and protrude constantly. The dentate line also enlarges in these fourth-degree haemorrhoids, and an external variable component made up of redundant, permanent perianal skin is present.[15] Three primary hemorrhoidal cushions typically originate from the right posterior,

right anterior, and left lateral positions of the anal cavity, also known as the 3, 7, and 11 o'clock positions, depending on the lithotomy position.[17,18]

CAUSES

Haemorrhoids' real cause is unknown. Temperament, bodily habits, customs, passions, sedentary lifestyle, tight-fitting clothing, climate, and seasons are a few of the first causes that have been put up. Patients with spinal-cord injuries frequently get haemorrhoids, and other conditions like constipation, persistent diarrhoea, bad toilet habits, delaying bowel movements, and a low-fiber diet are also thought to be contributory factors.[19] Recent research links the increased intra-abdominal pressure to a variety of factors, including prolonged forceful valsalva defecation, obstruction of venous outflow secondary to pregnancy, and constipated stool in the rectal ampulla. Severe haemorrhoids may result from cirrhosis brought on by alcoholism or another portal obstruction cause. A considerably less common but much more significant possibility is that haemorrhoids show collateral anastomotic channels that form as a result of portal hypertension.[19–21]

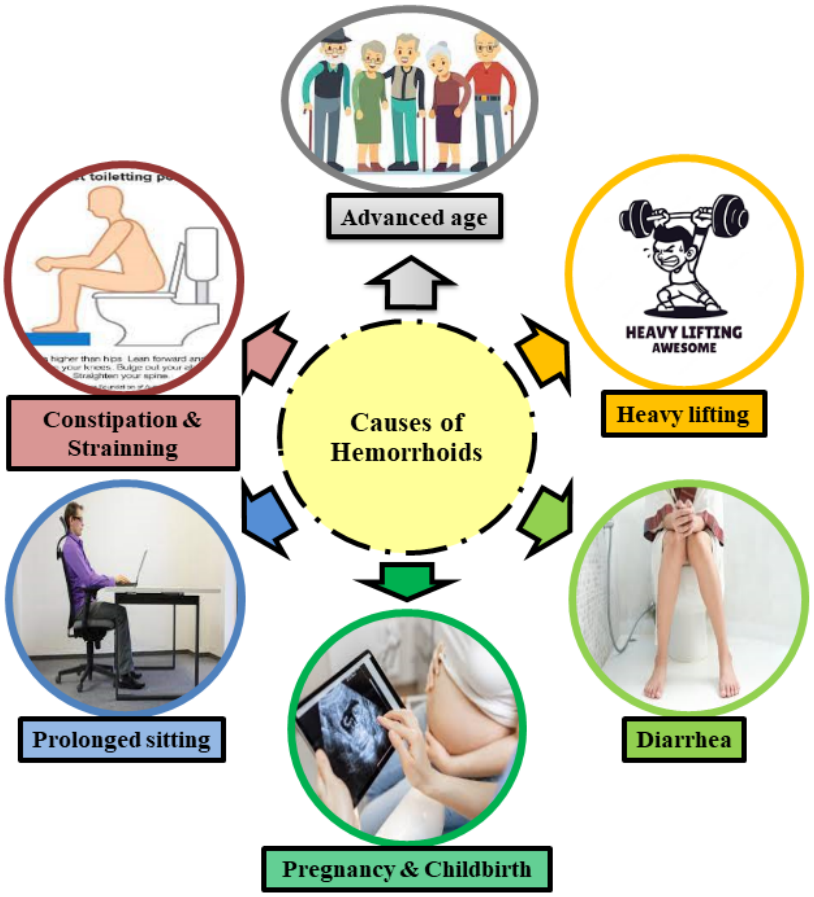

Fig.2: A few significant Haemorrhoids causes.

EPIDEMIOLOGY AND RISK FACTORS

Although it is widely acknowledged that haemorrhoids are a common source of rectal bleeding and anal discomfort, the exact epidemiology of this condition is unknown since individuals frequently self-medicate rather than seek appropriate medical care. Haemorrhoids were reported to be an issue by 10 million Americans in 1990, according to an epidemiologic study, giving the condition a 4.4% prevalence rate. Haemorrhoids rarely develop before the age of 20, with peak occurrence occurring in both sexes between the ages of 45 and 65.[3] More whites and people with higher socioeconomic status were impacted than black people and people with lower socioeconomic status. However, rather than actual occurrence, this association could simply be a reflection of varying health seeking behaviours. Haemorrhoids are said to afflict 13% to 36% of the general population in the United Kingdom. However, because the community-based research mostly relied on self-reporting and patients may assign any anorectal symptoms to haemorrhoids, this estimation may be higher than the real prevalence. Because hard stool and increased intraabdominal pressure may obstruct venous return and produce engorgement of the hemorrhoidal plexus, haemorrhoids are commonly thought to be caused by constipation and prolonged straining.[22,23] The shearing force on the anal cushions rises with hard faecal material defecation. Recent research calls into question the role constipation plays in the emergence of this widespread illness. While some studies suggested that diarrhoea is a risk factor for haemorrhoids, many researchers have been unable to show any significant correlation between haemorrhoids and constipation. The development of symptoms like bleeding and prolapse in patients with a history of hemorrhoidal disease may be sped up by an increase in straining to urinate. The anal cushion may get congested during pregnancy, and haemorrhoids may become symptomatic. These conditions will usually go away on their own shortly after the baby is born. Numerous dietary factors, such as a low-fibre diet, spicy meals, and alcohol consumption, have been linked, however the reported facts are contradictory.[3,4,24,25]

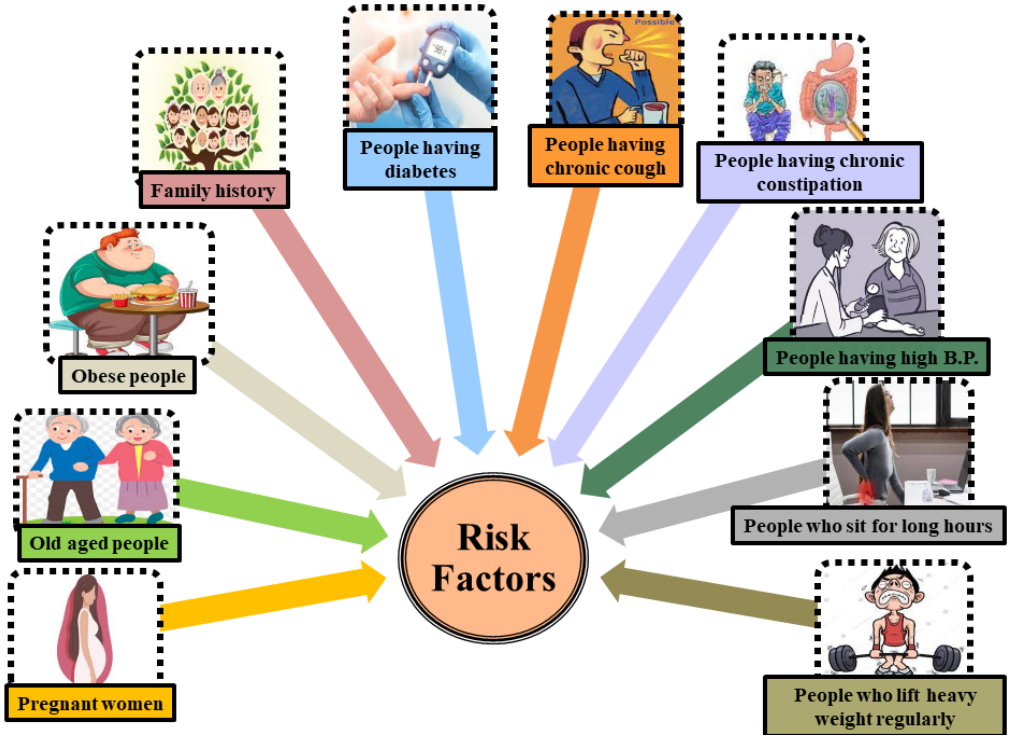

Fig.3: Haemorrhoids risk factors that frequently exist.

PATHOPHYSIOLOGY

The theory of varicose veins, which proposed that haemorrhoids were caused by varicose veins in the anal canal, had been popular for years, but it has since fallen out of favour because haemorrhoids and anorectal varices have been shown to be separate entities, and patients with portal hypertension and varices do not have an increased incidence of haemorrhoids.[26] The sliding anal canal lining theory is now widely accepted.[27] This suggests that haemorrhoids form when the anal cushions' supporting tissues degrade or disintegrate. Therefore, the pathological name for the aberrant downward displacement of the anal cushions that results in venous dilation is haemorrhoids. In the anal canal, there are normally three large anal cushions located in the right anterior, right posterior, and left lateral aspects. In addition, there may be a few tiny cushions positioned in between the three major anal cushions.[28] Haemorrhoids sufferers' anal cushions have severe pathological alterations. The aberrant venous dilatation, vascular thrombosis, fibroelastic tissue degeneration, anal subepithelial muscle distortion, and rupture are a few of these abnormalities. In addition to the results mentioned above, hemorrhoidal specimens have shown a significant inflammatory response including the vascular wall and surrounding connective tissue, along with concomitant mucosal ulceration, ischemia, and thrombosis.[29] The degradation of supporting tissues in the anal cushions is mediated by a number of enzymes or mediators that have been

researched. One of the most powerful enzymes among them is matrix metalloproteinase (MMP), a proteinase that is zinc-dependent and capable of breaking down extracellular proteins like collagen, elastin, and fibronectin. In association with the tearing apart of elastic fibres, haemorrhoids were discovered to have excessive MMP-9 expression. The rupture of the capillary bed and stimulation of transforming growth factor (TGF)- (MMP-2 and MMP-9) angioproliferative activity were caused by the activation of MMP-2 and MMP-9 by thrombin, plasmin, or other proteinases.[30,31] Neovascularization may be another significant symptom of hemorrhoidal illness, according to recent research that demonstrated increased microvascular density in hemorrhoidal tissue. Endoglin (CD105), one of TGF-'s binding sites and a proliferative marker for neovascularization, was found to be expressed in more than half of tissue samples from haemorrhoids in comparison to none from the normal anorectal mucosa, according to a 2004 study. Larger than 100 m venules included this marking strongly. Additionally, these researchers discovered that hemorrhoidal tissue's microvascular density rose, particularly in the presence of thrombosis and stromal vascular endothelial growth factors (VEGF). also proved that haemorrhoids have a greater expression of angiogenesis-related proteins including VEGF.[30,32] According to research on the morphology and hemodynamics of anal cushions and haemorrhoids, patients with haemorrhoids had terminal branches of the superior rectal artery with significantly larger diameters, higher blood flow, higher peak velocities, and faster acceleration velocities than healthy volunteers. Furthermore, there was a strong correlation between the severity of the haemorrhoids and an increase in artery calibre and flow. These aberrant findings persisted even after the haemorrhoids were surgically removed, supporting the hypothesis that hypervascularization and the onset of haemorrhoids are related.[31,33] Haemorrhoids exhibit aberrant venous dilatation and distortion on histological examination, which suggests that vascular tone dysregulation may contribute to the development of haemorrhoids. In general, the autonomic nervous system, hormones, cytokines, and the overlaying endothelium control vascular smooth muscle. Numerous vascular problems are brought on by an imbalance between the endothelium's vasoconstricting and relaxing substances, such as reactive oxygen radicals, prostacyclin, and endothelium-derived hyperpolarizing factor.[34] In patients with haemorrhoids, several physiological alterations in the anal canal have been noticed. found that internal sphincter thickness did not significantly change, while resting anal pressure in patients with non-prolapsing or prolapsing haemorrhoids was significantly higher than in normal participants. Haemorrhoids significantly increased resting anal pressures, decreased rectal compliance, and increased perineal descent in those who had them prior to surgery.

Within three months of the hemorrhoidectomy, the anomalies returned to normal range, indicating that these physiological alterations are more likely to be a result of hemorrhoidal disease than their origin.[35,36]

THE HAEMORRHOIDS DISEASE'S AVAILABLE TREATMENTS

❖ Conservative Medical Treatments

The cornerstones of conservative medical treatment for haemorrhoid illness are dietary and lifestyle changes. Specifically, alterations to one's way of life should involve drinking more water, eating less fat, refraining from straining, and exercising frequently. In order to reduce the shearing action of passing hard stool, it is recommended that fibre intake be increased. The likelihood of persistent symptoms and bleeding was 50% lower when fibre supplementation (7–20 g/d) was used as a control in a meta-analysis of seven randomised trials comparing fibre to nonfiber controls. However, consuming more fibre did not lessen prolapse, discomfort, or itching sensations.[37] Topical therapies with different local anaesthetics, corticosteroids, or anti-inflammatory medications are offered for symptomatic relief. The 0.2% glyceryl trinitrate topical medication, which has been shown in studies to cure grade I or II haemorrhoids with high resting anal canal pressures, is notable. However, 43% of patients also experience headaches after using this medication. Preparation-H (Pfizer Incorporated, Kings Mountain, NC) is another common self-medication used by patients. It contains phenylephrine, petroleum, mineral oil, and shark liver oil (vasoconstrictor and protectants), and it temporarily relieves acute haemorrhoid symptoms like bleeding and pain when defecating.[38,39] Haemorrhoids have been treated with dietary supplements such venotonics like flavonoids. These medications' exact mode of action is yet unknown, however they may enhance venous tone, lessen hyperpermeability, and have anti-inflammatory properties. This procedure is widely used to treat haemorrhoids in continental Europe and the Far East, however a recent meta-analysis found that methodological flaws and apparent publication bias cast doubt on the efficacy of these medications.[40]

❖ Office-based Nonsurgical Procedures

The most frequent treatments for internal haemorrhoids include rubber band ligation, sclerotherapy, and infrared coagulation, however there is no agreement on the best course of action. In order to minimise prolapse, each surgery aims to diminish vascularity, eliminate excess tissue, and strengthen the hemorrhoidal rectal wall.[41]

- **Sclerotherapy**

Patients with internal haemorrhoids of grades I and II might consider sclerotherapy, which may be a viable alternative for those taking anticoagulants. Sclerotherapy is similar to rubber band ligation in that it doesn't call for local anaesthesia. Internal haemorrhoids are detected and injected with a sclerosant material into the submucosa using an anoscope; the sclerosant material is commonly a solution containing phenol in vegetable oil. The superfluous hemorrhoidal tissue eventually disappears as a result of sclerosant-induced fibrosis, fixation to the anal canal, and anal canal obliteration. Sclerotherapy risks include slight bleeding or pain. Rectal fistulas or perforation can, however, extremely infrequently result from improper injections.[42] Instead of banding, first- or second-degree haemorrhoids can be treated with a submucosal injection of 5% oily phenol. Large prolapsing haemorrhoids and those with a substantial external component are not helped by it. Even though it is less common than banding, it is nonetheless inexpensive and simple to perform. Sclerotherapy injections may not be necessary in conservative treatments when fibre supplements are used. Sclerosants occasionally cause complications, although these can include erectile dysfunction, prostatitis, local infections, and portal pyaemia.[43,44]

- **Rubber Band Ligation**

The most frequently used treatment in the clinic is a rubber band ligation, which is recommended for grade II and III internal haemorrhoids. External diseases with symptoms and patients who have coagulopathies or are using chronic anticoagulants are contraindicated due to the possibility of delayed haemorrhage. Patients who are immunocompromised also have a higher risk of developing sepsis.[45,46] There is no need for local anaesthesia when performing rubber band ligation. A left lateral or jackknife posture is used to position the patient while the surgery is carried out using an anoscope. The McGivney forceps ligator and the suction ligator are the two most used ligating devices, while there are more platforms available. The base of the internal haemorrhoids is firmly encircled by small rubber band rings. In order to avoid inserting into somatically innervated tissue, should be inserted at least half a centimetre above dentate line. Prior to the rubber band release, patients should be questioned about the presence of pain. While it is safe to ligate many columns in a single visit, some specialists advise starting with a single column in order to precisely gauge the patient's tolerance for the treatment on the initial appointment.[41,47] The mechanism of action of rubber band ligation is the necrosis of haemorrhoid tissue and its attachment to the rectal mucosa. After 3 to 5 days, necrosis sets in when the tissues become ischemic, creating an

ulcerated tissue bed. Several weeks later, full recovery takes place. Although they are extremely rare, complications can include discomfort, urine retention, delayed bleeding, and very occasionally perineal sepsis. Haemorrhoid illness necessitating the insertion of four or more bands was linked to a tendency in higher failure rates and a larger requirement for a future hemorrhoidectomy in a large evaluation of 805 patients from a single practise that carried out 2,114 rubber band ligations. In this patient group, complications were noted in the form of bleeding (2.8%), thrombosed external haemorrhoids (1.5%), and bacteremia (0.09%). Warfarin, aspirin, and nonsteroidal anti-inflammatory medications all caused higher bleeding rates.[48]

- **Infrared Coagulation**

Internal haemorrhoids in grades I and II can be treated with infrared coagulation, which is the direct application of infrared light waves to the hemorrhoidal tissues. Three to five treatments per internal haemorrhoid are often used to complete this technique, which involves placing the tip of the infrared coagulation applicator on the internal haemorrhoid for two seconds. The applicator promotes necrosis of the haemorrhoid, which is seen as a white, blanched mucosa, by converting infrared light waves to heat. The prolapsed haemorrhoid mucosa retracts as a result of the afflicted mucosa scarring over time. There have been extremely few reports of major discomfort or bleeding following this operation. In a meta-analysis of 18 trials comparing the various office-based methods, MacRae and McLeod found that rubber band ligation was superior to sclerotherapy for treating grade I and III haemorrhoids, with no differences in the incident rate.[49]

- **Various other methods**

It is possible to cure first- or second-degree haemorrhoids with infrared coagulation. Although it has fewer side effects than bands, it is not very popular because it tends to be less effective. Although they have been utilised, direct current electrotherapy, bipolar diathermy, and cryosurgery have limited scientific backing.[50]

❖ **Surgical treatments for Haemorrhoids**

Surgery is typically necessary when symptoms persist despite conservative or minimally invasive treatments. Additionally, surgery is the first option for patients with grade IV haemorrhoids who are symptomatic or who have internal haemorrhoids that have strangulated. Additionally, patients who have thrombosed haemorrhoids or grade III haemorrhoids who come with symptoms may need it.[51]

- **Doppler guided haemorrhoidal artery ligation**

The first description of this method for treating haemorrhoids was made in 1995. In order to locate the feeding arteries during surgery, a proctoscope with an integrated Doppler probe is used, and these vessels are then strangulated with absorbable sutures. It is believed that preventing blood from entering the vascular cushion will lessen the size of the haemorrhoid. Up to 60% of patients in the larger trials are delighted with the procedure's results, which are comparatively painless and have low morbidity. Although further randomised controlled trials are required, over the past five years this has gained popularity across Europe as a less mutilating alternative to surgical haemorrhoidectomy.[52]

- **Open and closed haemorrhoidectomy**

Haemorrhoidectomy, both open and closed large symptomatic haemorrhoids that do not improve with outpatient care are the only ones that require surgery. Only a small percentage of people treated for haemorrhoids by a coloproctologist have surgery. The open method for doing vascular cushion excision surgery was originally introduced in 1937. In the United Kingdom, this method is well-liked. Using electrocauterization, laser surgery, the Ligasure vessel sealing system, the harmonic scalpel (an ultrasonic cutting and coagulating device), scissors, or another method, the haemorrhoid is separated from the underlying anal sphincter complex. By secondary intention, the vascular pedicle is managed, and the mucosal defects are left open and allowed to granulate. In the United States, the closed approach, which was initially described in 195916, is more common. Similar to the open approach, but with a continuous stitch to close the mucosal margins and skin. Although both of these procedures are secure and efficient, the closed hemorrhoidectomy encourages quicker wound healing.[53,54] Surgery for haemorrhoids is a painful process that is increasingly done on an outpatient basis. Prescribe a thoughtful perioperative pain management plan. Laxatives, in addition to perioperative analgesics and local anaesthetics, aid in easing discomfort during the initial postoperative motion. For preventing pain after surgery, prophylactic oral metronidazole, topical diltiazem, topical glyceryl trinitrate, or injections of botulinum toxin may be helpful.

Anal stenosis, which is typically caused by insufficient mucosal bridges, urine retention, infection, faecal incontinence as a result of sphincter injury, and secondary haemorrhage (occurring seven to ten days following surgery) are complications.[55–57]

- **Acutely thrombosed haemorrhoids**

The majority of acutely thrombosed prolapsed haemorrhoids can be treated at home with ice packs, stool softeners, and analgesics, and they typically go away in 10 to 14 days. Pain relief from topical calcium antagonists may be possible. In extreme circumstances, immediate surgery may be required to debride necrotic tissue or remove an engorged haemorrhoid. Although it can help symptoms disappear more quickly, this is frequently accompanied by serious morbidity.[58,59]

- **Stapled haemorrhoidopexy**

In the 1990s, this method was created. It is done with a transanal circular stapler that has been specially designed to decrease prolapse by excising a circumferential ring of mucosa around 2-3 cm above dentate line. not only "hitches up" prolapsed mucosa but also cuts off the arteries that provide blood to the haemorrhoid, much like Doppler guided haemorrhoidal artery ligation. when it was initially created, it was asserted that this procedure would be just as effective, less painful, and quicker to recover from than a traditional hemorrhoidectomy. Although several of studies had small, sample sizes, more than 25 randomised controlled trials have compared stapled haemorrhoidopexy with traditional haemorrhoidectomy. The treatment is less painful and safe, the hospital stay is shorter, and there is a quicker return to normal activities, according to evidence from a recent meta-analysis. According to long-term follow-up studies, stapled hemoidopexy is associated with greater recurrence rates than conventional hemoidopexy.[60,61] But other investigations have not found this; one early trial did describe acute postoperative pain and faecal urgency following the stapled surgery. Bleeding, urine retention, faecal incontinence, rectal perforation, rectovaginal fistulas, anastomotic leak, anal stricture, and severe pelvic sepsis are further potential risks.[43,62]

❖ **Essential herbal haemorrhoid treatments**

- **Olive Oil (Oleaeuropaea)**

The skin is rejuvenated by olive oil. It contains a lot of omega-3 fatty acids. It has beneficial effects on cholesterol management and LDL cholesterol oxidation, promotes arterial flexibility, lowers the risk of coronary heart disease, and has anti-inflammatory and antioxidant characteristics.[63]

- **Rue Care Oil (Rutagraveolens)**

Rue Care Oil is a proven topical remedy that has been specifically created to relieve haemorrhoids. All varieties of haemorrhoids, including internal haemorrhoids, external

haemorrhoids, bleeding haemorrhoids, fissure, thrombosed piles, and prolapsed haemorrhoids, can be effectively treated with Rue Care Oil. For the treatment of haemorrhoids, Rue Care Oil uses traditional herbal knowledge and only the purest natural oils (olive, sesame, and rue).[63]

- **Sesame Seed Oil (Sesamumindicum)**

Since ancient times, sesame seed oil has been used for therapeutic purposes. It functions as an antiviral, antibacterial, and natural inflammatory agent. The tissues and bone marrow readily absorb and absorb sesame seed oil. It can therefore be used as a carrier oil. Vitamin E-rich sesame seed oil is also used to treat haemorrhoids.[64]

- **Rue Oil (Rutagraveolens)**

Rue is a medicinal herb that has been used for ages to treat a wide range of illnesses and disorders. India, Iran, Lebanon, Mexico, and China still use rue as a common folk remedy. It helps to treat varicose veins and fortifies weak blood vessels. Additionally, gout, sciatica, and rheumatic pain are all treated with it.[64]

- **Mint (Mentha Piperita)**

This herb, sometimes known as peppermint, has downy leaves and tiny, violet-white blooms. It produces a strong oil that is used as a flavouring. Use to lessen itching and relieve pain from haemorrhoids.[64]

- **White dammar (Vateria Indica)**

Haemorrhoids have long been treated traditionally in India with a bitter resin from the pine tree. It aids in reducing inflammation and promoting faster recovery.[65]

- **White lupine (Lupinus albus)**

It has been demonstrated that the essential oil extract from lupin (also known as lupaline) is 5000 times and 10,000 times more effective than vitamin C and E, respectively. This helps the skin repair enzyme function and promotes skin healing and recovery.[66]

QUALITY OF LIFE (QoL) IN HEMORRHOIDAL DISEASE PATIENTS

An important non-specific component of a person's subjective experience of wellbeing is their quality of life (QOL). It encompasses the physical, mental, and social aspects in addition to the health condition. As a result, it has been suggested that QOL be utilised as the primary measurement to evaluate the effectiveness of intervention.[67] The current study is the initial

epidemiological investigation of patients with haemorrhoids whose diagnosis has been clinically confirmed in terms of quality of life. It should be noted that there was no difference between symptomatic and asymptomatic haemorrhoids, and the slight declines in physical health ratings shown with higher grades of haemorrhoids were not statistically significant. This is an intriguing discovery because haemorrhoids can produce significant symptoms including bleeding, itchiness, and pain that prompt many individuals to seek medical attention.[68–70] Only two participants in the current study had Grade IV haemorrhoids, therefore hindered investigation of those who had more severe symptoms. There were also no people who had painful prolapsed irreducible or thrombosed haemorrhoids, which would almost certainly have been linked to a lower quality of life. However, where there was sufficient data for statistical analysis, prolapse symptoms did not significantly affect quality of life, even when they required digital replacement.[71] The significance of QOL as a primary outcome metric following surgery has been emphasized in recent years. This is especially true in cancer, where patients' subjective perceptions of their health are increasingly taken into account. Furthermore, in order to direct treatment, it is crucial to assess each patient's disease severity and how it affects QOL.[38,72] A typical, verified, and non-specific measurement of QOL is the SF-12 used in this study. It asks questions regarding physical function, role limitations brought on by physical health issues, body discomfort, general health, vitality, social function, role limitations brought on by emotional issues, and mental health. Colonoscopy screening's effect on quality of life was examined, and it was discovered that, following a routine exam, mental health greatly improved. The baseline QOL scores for colonoscopy patients and a matched general population sample were comparable, which is noteworthy. In a study that examined QOL using the Gastrointestinal Quality of Life Index (GIQLI) in 325 consecutive patients seen in the proctology outpatient clinic, patients were split into nine categories based on the clinical findings.[73,74] Only the patient subgroups with diseases including fissure, severe constipation, and faecal incontinence, according to the writers had significantly worse QOL than age-matched, healthy controls. Notably, the group of patients who had haemorrhoids did not have a lower quality of life. However, using the SF-36, it was observed that QOL had improved following surgery for problematic haemorrhoids.[75]

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CONCLUSION AND FUTURE DIRECTION

Our review articles begin with a general overview of haemorrhoids, including their different types, causes, epidemiology, pathophysiology, combination therapies, including surgical, nonsurgical, and herbal options, and quality of life (QoL). Our investigation shows that while non-pharmacological and natural supplements offer a respectable result but take some time to work and have no unfavourable side effects, medicine does provide some relief but not complete healing. More randomised controlled studies are required to better understand how to treat haemorrhoids. Future research on haemorrhoids is something we wish to do. Future counselling-based research will be conducted in our nation or state with the assistance of our colleagues in order to evaluate the physical and mental health of patients and generate more accurate information on haemorrhoids and its better management.

Table 1: Current status of clinical trials on Hemorrhoids.

Drug	Mode of administration	Disease	Enrollment	Allocation/Intervention model/Masking	Official Title of the study	Status	Clinical trial	Year
NA	Observational	Hemorrhoid	500	NA	Longitudinal Description of Hemorrhoidal Pathology	NA	NCT04945408	2023
LHP/ MM	Interventional	Hemorrhoid	220	Randomized/ Parallel Assignment/Single (Outcomes Assessor)	Minimal Invasive Laser Hemorrhoidoplasty vs Conventional Excisional Hemorrhoidectomy in II-III Grade Hemorrhoidal Disease: a Randomized Controlled Trial	NA	NCT04944407	2021
SKY0402/ Placebo	Interventional	Hemorrhoid	189	Randomized/ Parallel Assignment/ Double (ParticipantOutcomes Assessor)	A Multicenter, Randomized, Double-Blind, Parallel-Group, Placebo-Controlled Study to Evaluate the Safety and Efficacy of a Single Administration of SKY0402 for Prolonged Postoperative Analgesia in Subjects Undergoing Hemorrhoidectomy	Phase-3	NCT00890721	2013
Rubber band ligation/ Bipolar coagulation	Interventional	Hemorrhoid	45	Randomized/ Parallel Assignment/ None (Open Label)	Randomized Study Of Endoscopic Band Ligation Versus Bipolar Probe Electrocoagulation Of Bleeding Internal Hemorrhoids	NA	NCT00630669	2008
NA	Observational	Hemorrhoid	151	NA	Long-term Efficacy of Doppler Ligation With Mucopexy in the Treatment of Internal Hemorrhoidal Disease	NA	NCT04708678	2023
NA	Observational	Hemorrhoid	3592	NA	A Prospective, Observational (Non-interventional), International Study to Assess Conservative	NA	NCT04578730	2023

					Treatments Effectiveness in Acute Phase of Hemorrhoidal Disease			
Infiltration/ Spinal block/ Bupivacaine/ 10 mg of hyperbaric 0.5% bupivacaine	Interventional	Hemorrhoid	40	Randomized/ Parallel Assignment/ None (Open Label)	Comparative Study of the Analgesic Effect of Subarachnoid or Infiltration for Hemorrhoidectomy	NA	NCT01927874	2016
Neofitoroid	Interventional	Hemorrhoid	45	N/A /Single Group Assignment/ None (Open Label)	Prospective, Single Arm, Open Study to Evaluate the Effect of NeoFitoroid® in Reducing Symptoms in Patients With Hemorrhoidal Disease	NA	NCT03545724	2019
Haemorrhoidectomy a.m. Milligan/ Stapled anopexy	Interventional	Hemorrhoid	207	Randomized/ Parallel Assignment/ None (Open Label)	Symptom Control 1-year After Circular Stapler Anopey or Diathermy Excision for Prolapsed Haemorrhoids: an International Randomsed Trial (the STOPP-trial	Phase-4	NCT00841620	2015
Trimebutine/ Hemorrhoidectomy	Interventional	Hemorrhoid	42	Randomized/ Parallel Assignment/Triple (ParticipantCare ProviderOutcomes Assessor)	Effect of Trimebutine on Postoperative Pain After Milligan-Morgan Hemorrhoidectomy: A Randomized Controlled Trial	NA	NCT03036111	2017
NA	Observational	Hemorrhoid	40	NA	Evaluation of the Technique LHP (Laser HemorrhoidoPlasty) in Haemorrhoidal Prolapse Mini Invasive Surgery Grade II or III of Goligher	NA	NCT03322527	2018
Flavonoids/ CDobi	Interventional	Hemorrhoid	100	Randomized/ Parallel Assignment/Quadruple (ParticipantCare ProviderInvestigatorO	Calcium Dobesilate vs Flavonoids for the Treatment of Early Hemorrhoidal Disease a Randomised Triple Blind	Phase-4	NCT02782455	2018

				utcomes Assessor)	Controlled Trial			
Bupivacaine HCl/ SKY0402	Interventional	Hemorrhoid	204	Randomized/ Prallel Assignment/ Double (Care ProviderInvestigator)	Phase 3, Multicenter, Randomized, Double-Blind, Parallel-group, Active-control Study to Evaluate the Safety and Efficacy of a Single Administration of SKY0402 for Prolonged Postoperative Analgesia in Subjects Undergoing Hemorrhoidectomy	Phase-3	NCT00744848	2013
Circular Anal Dilator for Transanal Hemorrhoidectomy	Interventional	Hemorrhoid	20	N/A/ Single Group Assignment/ None (Open Label)	Feasibility Study of a New Circular Anal Dilator for Transanal Hemorrhoidectomy	NA	NCT00693459	2022
Metronidazole/ Placebo	Interventional	Hemorrhoid	44	Randomized/ Parallel Assignment/ Double (ParticipantInvestigator)	Effectiveness of Metronidazole Versus Homologated Placebo in Pain Control Posthemorrhoidectomy	Phase-3	NCT02328144	2014
diathermy haemorrhoidectomy under espinal anesthesia/ diathermy haemorrhoidectomy under local anesthesia/ Ligasure haemorrhoidetomy under spinal anestesia/ Ligasure haemorrhoidectomy under local anesthesia	Interventional	Hemorrhoid	81	Randomized/ Parallel Assignment/ Double (ParticipantOutcomes Assessor)	Ligasure Versus Diathermy Haemorrhoidectomy Under Spinal or Local Anaesthesia With Ropivacaine. A Randomized Study With One Year Follow-up	NA	NCT00617448	2008
CONAN Proctological Cream	Interventional	Hemorrhoid	40	Randomized/ Parallel Assignment/ None (Open Label)	Efficacy and Safety of CONAN® Proctological Cream Formulation in the Topical Treatment of Haemorrhoidal Disease and Anal	NA	NCT05984641	2023

					Fissures: a Randomized Controlled Clinical Trial			
deep breathing exercises	Observational	Hemorrhoid	80	NA	Effectiveness of Guided Breathing Exercises on Anorectal Pain in Patients With Symptomatic Hemorrhoids	NA	NCT03240185	2020
band ligation/ oral 450 mg diosmin+50 mg hesperidin	Observational	Hemorrhoid	69	NA	Comparative Study of Band Ligation and Phlebotonic Drug Versus Only Phlebotonic Drug, in Bleeding Internal Hemorrhoids.	NA	NCT04290351	2022
early warm water sitz bath/ Regular time warm water sitz bath	Interventional	Hemorrhoid	64	Randomized/ Parallel Assignment/ Double (ParticipantOutcomes Assessor)	Effect of Early Warm Water Sitz Bath on Urinary Retention After Hemorrhoidectomy	NA	NCT04535765	2021
Topical 2,5% lidocaine + 2,5% prilocaine gel/ Placebo	Interventional	Hemorrhoid	80	Randomized/ Single Group Assignment/ Triple (ParticipantCare ProviderInvestigator)	Topical Anesthesia Versus Placebo to Decrease Post Procedure Pain in Rubber Band Ligation for the Treatment of Grade I - III Symptomatic Internal Hemorrhoids. A Single Institution, Double Blinded, Placebo Controlled Trial.	Phase-3	NCT02130830	2016
Hydrocortisone Acetate Suppository, 25 mg (Nivagen)/ Placebo (Vehicle) Suppository (Nivagen)	Interventional	Hemorrhoid	103	Randomized/ Parallel Assignment/ Quadruple (Participant Care ProviderInvestigatorOutcomes Assessor)	A Randomized, Double-blind, Placebo-controlled, Multicenter, Parallel Group Study to Evaluate Safety and Efficacy of 25 mg Hydrocortisone Acetate Suppositories in the Treatment of Symptomatic Internal Hemorrhoids.	Phase-2	NCT03335774	2022
NA	Observational	Hemorrhoid	130	NA	Validation of Hemorrhoidal Bleeding Score	NA	NCT03060616	2023

Relief Pro cream/ Relief Pro rectal suppositories	Observational	Hemorrhoid	1000	NA	Prospective Multicenter Non-interventional Study of Fluocortolone + Lidocaine Formulation in Patients With Acute Hemorrhoids to Evaluate Changes in Symptoms Severity During the Course of Treatment	NA	NCT03757078	2020
Anucort-HC, 25 Mg Rectal Suppository/ Placebo suppository	Interventional	Hemorrhoid	150	Randomized/ Parallel Assignment/ Quadruple (Participant Care ProviderInvestigatorOutcomes Assessor)	A Randomized, Double-Blind, Vehicle-Controlled, Multicenter Study to Evaluate Safety and Efficacy of Anucort HC TM (Hydrocortisone Acetate) 25mg Rectal Suppositories in the Treatment of Symptomatic Internal Hemorrhoids	Phase-2	NCT01913158	2016
Milligan Morgan	Observational [Patient Registry]	Hemorrhoid	1000	NA	Milligan-Morgan Hemorrhoidectomy Versus Dearterialization With Mucopexy in the Treatment of Grade III Hemorrhoidal Disease: Multicenter Retrospective Study	NA	NCT04863963	2021
NA	Observational	Hemorrhoid	446	NA	Impact of Moderate to Severe Pain in the Post-intervention Monitoring Room After Hemorrhoidectomy on the Length of Stay in the Outpatient Surgery Unit	NA	NCT04567485	2023
Polidocanol Injectable Foam/ Rubber band ligation	Interventional	Hemorrhoid	120	Randomized/ Parallel Assignment/ None (Open Label)	Sclerotherapy With Polidocanol Foam Versus Rubber Band Ligation in the Treatment of First, Second and Third-Grade Hemorrhoidal Disease: a	Phase-2	NCT04091763	2020

					Randomized, Controlled Trial			
Thrombectomy/ Hemorrhoidectomy	Observational [Patient Registry]	Hemorrhoid	96	NA	Treatment of Thrombosed External Hemorrhoids: Comparison of the Thrombectomy and Local Excision Procedures in Terms of Results and Outcome: A Multi-Centre, International, Prospective Cohort Study	NA	NCT03903536	2023
Ferguson/THD	Interventional	Hemorrhoid	40	Randomized/ Parallel Assignment/ None (Open Label)	Trans-anal Hemorrhoidal Dearterialization (THD) vs. Hemorrhoidectomy for 3rd and 4th Degree Hemorrhoids in at Least Three Quadrants: A Prospective Randomized Control Pilot Study.	NA	NCT01244672	2012
Polidocanol foam sclerotherapy/ Doppler-guided hemorrhoidal artery ligation	Interventional	Hemorrhoid	45	Randomized/ Parallel Assignment/ None (Open Label)	Sclerotherapy With Polidocanol Foam Versus Hemorrhoidal Artery Ligation With Recto Anal Repair in the Treatment of Second and Third-grade Hemorrhoidal Disease: a Prospective Study	Phase-2 & 3	NCT04675177	2021
Haemorrhoidal Artery Ligation/ Laser Haemorrhoidoplasty	Interventional	Hemorrhoid	76	Randomized/ Parallel Assignment/ Double (ParticipantCare Provider)	Comparison of Post-operative Bleeding Incidence in Laser Haemorrhoidoplasty Versus Laser Haemorrhoidoplasty With Haemorrhoidal Artery Ligation: A Double-Blinded Randomized Controlled Trial	NA	NCT04667169	2020
Circular stapled anopexy/ Closed diathermy haemorrhoidectomy	Interventional	Hemorrhoid	182	Randomized/ Parallel Assignment/ None (Open Label)	Prospective Randomized Multi-centre Trial Comparing the Clinical Efficacy, Safety and Patient Acceptability of Circular Stapled Anopexy With Closed	NA	NCT00397137	2019

					Diathermy Haemorrhoidectomy for Haemorrhoids			
Hydrocortisone acetate and lidocaine hydrochloride/ Placebo control/ Hydrocortisone acetate/ Lidocaine hydrochloride	Interventional	Hemorrhoid	211	Randomized/ Parallel Assignment/ Quadruple (Participant Care ProviderInvestigatorOutcomes Assessor)	A Randomized, Dose-Ranging, Double Blind Study of Lidocaine Hydrochloride and/or Hydrocortisone Acetate (Alone or in Combination) in the 14-Day Twice-Daily Treatment of Grade I or II Hemorrhoids	Phase-2	NCT02689856	2016
Ligation and Hemorrhoidopexy/ Ultrasound Guided Ligation of Hemorrhoidal Arteries	Interventional	Hemorrhoid	60	Randomized/ Parallel Assignment/ Triple (ParticipantInvestigatorOutcomes Assessor)	Comparison Between the Ligation and Hemorrhoidopexy Technique and the Conventional Ligation of Hemorrhoidal Arteries Using Ultrasound: a Prospective, Randomized Controlled Study	NA	NCT03298997	2020
Euphorbia tablets/ Euphorbia tablets/ Euphorbia tablets Drug: Placebo tablets	Interventional	Hemorrhoid	102	Randomized/ Parallel Assignment/ Double (ParticipantInvestigator)	Double-blind, Randomized, Placebo-controlled, Dose Response Study to Evaluate the Safety and Efficacy of Three Doses of Euphorbia Prostrata Dry Extract Tablets in Patients of Hemorrhoids	Phase-2	NCT01041911	2012
Iferanserin/ Placebo	Interventional	Hemorrhoid	121	Randomized/ Parallel Assignment/Quadruple (Participant Care ProviderInvestigatorOutcomes Assessor)	Protocol for the Study of the Effects of S-MPEC (Iferanserin) in Patients With Hemorrhoids	Phase-2	NCT01483833	2013

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