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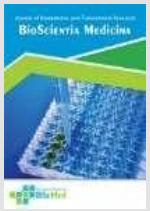

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Successful Surgical Management of Grade IV Internal Hemorrhoids in a Pediatric Patient: A Case Report

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A B S T R A C T

Background: Anorectal malformations are congenital conditions with a range of clinical presentations. They can be associated with portal hypertension or anatomical anomalies that obstruct venous outflow. While anorectal issues are common in pediatrics, their etiology and management can differ significantly from those in adults. This report presents a successful case of pediatric hemorrhoids managed surgically with a satisfactory outcome. **Case presentation:** A 4-year-old girl presented with a protruding anal lesion and intermittent constipation, first noticed at age 1. She was born aterm with no abnormalities. Physical examination revealed a 0.5 to 1 cm circular lesion obstructing the anal orifice, diagnosed as a grade-IV internal hemorrhoid. Laboratory results were within normal limits. Due to the severity of the lesion, a Whitehead hemorrhoidectomy was performed. Follow-up showed no complications, such as secondary wound healing, anal stricture, or mucosal ectropion. **Conclusion:** Whitehead hemorrhoidectomy is an effective treatment for severe pediatric hemorrhoids, as demonstrated by this case with a complication-free recovery. Accurate surgical technique and vigilant follow-up are key to a successful outcome.

1. Introduction

Hemorrhoids, also known as piles, are a prevalent proctological disorder characterized by the abnormal swelling and inflammation of vascular structures in the anal canal. These vascular structures, comprising arteriovenous plexuses and connective tissue, play a crucial role in maintaining anal continence. However, under certain conditions, they can become engorged and distended, leading to the formation of hemorrhoids. The etiology of hemorrhoids is multifactorial, with contributing factors including chronic constipation, straining during defecation, prolonged sitting, obesity, pregnancy, and a low-fiber diet. These factors can increase pressure within the abdominal cavity and impede venous return from the anorectal region, leading to the development of hemorrhoids. Hemorrhoids are classified into two main types: internal and external. Internal hemorrhoids originate above the dentate line, a demarcation point in the anal canal, and are typically painless due to the absence of somatic innervation in this region. External hemorrhoids, on the other hand, develop below the dentate line and are often associated with pain, itching, and bleeding, especially during bowel movements.[1-3]

The prevalence of hemorrhoids is estimated to be as high as 75% in adults, with the peak incidence occurring between the ages of 45 and 65. While

hemorrhoids are commonly perceived as a condition affecting primarily adults, they can also occur in children, albeit with a lower prevalence of approximately 4.2%. In contrast to adults, the etiology of hemorrhoids in children is often distinct. While constipation and straining during defecation can contribute to the development of hemorrhoids in children, other factors, such as portal hypertension and anatomical anomalies that obstruct venous outflow, may also play a role. Portal hypertension, a condition characterized by elevated pressure in the portal venous system, can lead to the engorgement of hemorrhoidal veins, resulting in the formation of hemorrhoids. Anatomical anomalies, such as anorectal malformations, can also impede venous return from the anorectal region, predisposing children to hemorrhoids. The clinical presentation of hemorrhoids in children can vary depending on the type and severity of the condition. Internal hemorrhoids may be asymptomatic or may manifest as painless rectal bleeding, while external hemorrhoids can cause pain, itching, and discomfort, particularly during defecation. In some cases, children may present with a palpable anal mass or a prolapsing hemorrhoid that protrudes from the anus.[4-7]

The diagnosis of hemorrhoids in children is primarily based on a thorough clinical evaluation, including a detailed medical history and physical examination. Imaging studies, such as anorectal manometry and endoscopy, may be employed to assess the severity of the condition and rule out other potential causes of the symptoms. The management of hemorrhoids in children depends on the severity of the condition and the presence of associated symptoms. Conservative measures, such as increasing fiber intake, ensuring adequate fluid intake, and administering stool softeners, are often effective in relieving symptoms and preventing complications. In cases of severe or persistent hemorrhoids, surgical intervention may be considered. Several surgical procedures are available for the treatment of hemorrhoids in children, including hemorrhoidectomy, rubber band ligation, and sclerotherapy. The choice of procedure depends on various factors, such as the type and severity of hemorrhoids, the child's overall health, and the surgeon's expertise.[8-10] This case report presents a unique case of a pediatric patient with grade IV internal hemorrhoids who underwent successful surgical management with Whitehead hemorrhoidectomy.

2. Case Presentation

This case report details the presentation, diagnosis, and treatment of a 4-year-old female patient who presented with a protruding anal lesion and a history of intermittent constipation. The patient's symptoms were first noticed at the age of 1 year and had progressively worsened over time, with the lesion increasing in size and the constipation becoming more frequent. A comprehensive medical history was obtained from the patient's parents. The chief complaint was a protruding anal lesion, accompanied by bleeding during defecation. This lesion was first observed when the patient was approximately 1 year old. Initially, it was small and intermittent, protruding only during defecation and spontaneously reducing afterwards. However, over time, the lesion became more prominent, increasing in size and frequency of protrusion. The patient also experienced intermittent constipation starting around 8 months of age. This was characterized by infrequent bowel movements, straining during defecation, and the passage of hard stools. The constipation appeared to correlate with the worsening of the anal lesion, suggesting a potential causal relationship. A detailed birth history revealed that the patient was born at term with no complications during gestation or delivery. No abnormalities were noted at birth, and the patient's early developmental milestones were achieved within the expected timeframe. A review of the patient's past medical history indicated that her immunizations were up-to-date, and she had experienced normal growth and development. There was no history of allergies, infections, or any significant medical conditions. Prior to presentation at

our clinic, the patient had undergone various conservative treatment attempts for her condition. These included dietary modifications with increased fiber intake, the use of stool softeners, and behavioral interventions to encourage regular bowel habits. However, these measures provided only temporary relief and did not prevent the progression of the anal lesion. Upon physical examination, the patient appeared to be in good general health. Her weight was 17 kg, which fell within the normal range for her age, and her nutritional status was assessed as appropriate. No signs of distress or discomfort were observed at rest. A focused rectal examination was performed to evaluate the anal lesion. A circular lesion, measuring approximately 0.5 to 1 cm in diameter, was identified at the anal orifice. The lesion was soft, fluctuant, and protruded upon straining. Based on these findings, a diagnosis of grade IV internal hemorrhoid was made. Grade IV internal hemorrhoids are characterized by permanent prolapse, meaning they remain outside the anal canal even without straining.

To further assess the patient's overall health and rule out any underlying systemic conditions, a series of laboratory investigations were conducted. These included; Complete Blood Count: This test evaluates the cellular components of blood, including red blood cells, white blood cells, and platelets. The patient's complete blood count was within normal limits, indicating no evidence of anemia, infection, or bleeding disorders; Coagulation Profile: This panel of tests assesses the blood's ability to clot effectively. The patient's coagulation profile was also within normal limits, suggesting normal hemostasis and minimizing the risk of excessive bleeding during any potential surgical intervention; Liver Function Tests: These tests measure the levels of various enzymes and proteins produced by the liver, providing information about liver function and overall health. The patient's liver function tests were within the normal range, ruling out any significant liver dysfunction that could contribute to the development of hemorrhoids. No imaging studies were deemed necessary in this case. The diagnosis of grade IV internal hemorrhoids was confidently made based on the clinical presentation and physical examination findings. Imaging modalities, such as anorectal manometry or endoscopy, are typically reserved for cases where the diagnosis is uncertain or when there is suspicion of other underlying conditions. Based on the comprehensive evaluation, including the detailed anamnesis, physical examination, and laboratory investigations, the primary diagnosis was confirmed as grade IV internal hemorrhoids. Differential diagnoses, such as anal polyps or anal papillae, were considered but ruled out based on the clinical findings. Anal polyps are typically painless growths that arise from the lining of the anal canal, while anal papillae are small, fleshy protrusions at the dentate line. The characteristics of the lesion in this case, including its size, location, and tendency to prolapse, were more consistent with a grade IV internal hemorrhoid. This case represents a rare presentation of grade IV internal hemorrhoids in a pediatric patient. While hemorrhoids are relatively common in adults, they are less frequently encountered in children. The severity of the condition in this young patient, coupled with the failure of conservative management, necessitated surgical intervention (Table 1).

Given the severity of the patient's condition and the failure of conservative management to provide adequate relief, a decision was made to proceed with surgical intervention. The chosen procedure was a Whitehead hemorrhoidectomy, a technique that involves the complete excision of the hemorrhoidal tissue. This approach was deemed appropriate due to the circumferential nature of the prolapsing hemorrhoid and the patient's young age, which favored a definitive solution to minimize the likelihood of recurrence. Prior to the surgical procedure, the patient underwent thorough preoperative preparation. This included bowel preparation with an enema to ensure the rectum was empty and clean, reducing the risk of infection during the surgery. Prophylactic antibiotics were also administered to further minimize the risk of postoperative infection. General anesthesia

was administered to ensure the patient's comfort and safety throughout the procedure. The surgical procedure was performed under general anesthesia with the patient in the lithotomy position. A circular incision was carefully made around the anal canal, encompassing the entire circumference of the prolapsing hemorrhoidal tissue. Meticulous dissection was then performed to separate the hemorrhoidal tissue from the underlying muscle and sphincter complex. The hemorrhoidal tissue was completely excised, ensuring complete removal of the diseased tissue. Following the excision, the mucosa and skin edges were carefully approximated and sutured together using absorbable sutures. This meticulous closure aimed to achieve optimal wound healing and minimize the risk of complications such as anal stenosis or ectropion. In the immediate postoperative period, the patient received comprehensive care to ensure optimal recovery and minimize discomfort. Pain management was achieved through the administration of analgesics, ensuring the patient's comfort and facilitating early mobilization. Stool softeners were prescribed to prevent constipation and straining, which could disrupt wound healing and increase the risk of recurrence. The patient was also advised to take regular sitz baths, which involve immersing the anal area in warm water. Sitz baths promote blood circulation, reduce inflammation, and soothe discomfort, aiding in the healing process. The patient was closely monitored during the postoperative period with scheduled follow-up appointments at 2 weeks, 6 weeks, and 3 months after the surgery. These follow-up visits included a thorough clinical examination to assess wound healing, anal function, and the presence of any complications. The assessments focused on evaluating the integrity of the surgical site, ensuring proper wound healing without any signs of infection, dehiscence, or stenosis. Anal function was assessed by evaluating the patient's ability to control bowel movements and the presence of any discomfort or incontinence. Throughout the follow-up period, the patient received comprehensive education on lifestyle modifications and dietary adjustments to promote long-term anal health and prevent recurrence. This included dietary advice emphasizing increased fiber intake and adequate fluid consumption to maintain soft stools and prevent constipation. The patient and her parents were also provided with detailed information on potential complications and warning signs to watch out for. They were advised to seek immediate medical attention if any concerning symptoms, such as excessive bleeding, severe pain, or fever, developed. The patient demonstrated excellent recovery throughout the follow-up period. The surgical site healed well without any complications, and the patient regained normal anal function with no evidence of incontinence or discomfort. The combination of meticulous surgical technique, comprehensive postoperative care, and close follow-up ensured a successful outcome in this case of grade IV internal hemorrhoids in a pediatric patient (Table 2).

3. Discussion

This case study illuminates a rare instance of grade IV internal hemorrhoids in a pediatric patient, a condition significantly less prevalent in children compared to adults. Hemorrhoids, also known as piles, are characterized by the swelling and inflammation of vascular structures in the anal canal. While common in adults, with a prevalence estimated as high as 75%, they are considerably less frequent in children, occurring in approximately 4.2% of this population. The lower prevalence of hemorrhoids in children can be attributed to a variety of factors. Children's diets tend to be richer in fiber, promoting regular bowel movements and reducing the risk of constipation, a major contributing factor to hemorrhoids. Additionally, children are generally more active, leading to improved blood circulation and reduced pressure on the veins in the anal region.

Table 1. Anamnesis, physical examination, laboratory, imaging, and diagnosis.

Category	Subcategory	Findings
Anamnesis	Chief Complaint	Protruding anal lesions, bleeding during defecation
	History of Presenting Illness	Symptoms first noticed at 1 year old, progressively increasing in size
		Intermittent constipation since 8 months old
	Birth History	Born at term, no complications during gestation or delivery
		No abnormalities were noted at birth
	Past Medical History	Immunizations complete, normal growth and development
		No history of allergies, infections, or significant medical conditions
	Treatment History	Conservative treatment attempts unsuccessful
Physical examination	General Appearance	Weight 17 kg (normal range), appropriate nutritional status
	Rectal Examination	Circular lesion, 0.5 - 1 cm, at anal orifice
		Grade IV internal hemorrhoid
Laboratory	Complete Blood Count	Within normal limits
	Coagulation Profile	Within normal limits
	Liver Function Tests	Within normal limits
Diagnosis	Primary Diagnosis	Grade IV internal hemorrhoids
	Differential Diagnoses	Anal polyps, anal papillae (ruled out based on clinical findings)

Table 2. Surgery procedure and follow-up.

Category	Subcategory	Details
Surgery procedure	Preoperative Preparation	Bowel preparation with enema
		Prophylactic antibiotics administered
		General anesthesia administered
	Surgical Procedure	Whitehead hemorrhoidectomy
		Circular incision made around the anal canal
		Hemorrhoidal tissue dissected and excised
		Mucosa and skin sutured together
	Postoperative Care	Pain management with analgesics
		Stool softeners prescribed
		Sitz baths recommended
Follow-up (Figure 1)	Clinical examination at 2 weeks, 6 weeks, and 3 months	
	Assessment of wound healing, anal function, and complications	
	Patient Education	Dietary advice on fiber intake and fluid intake
	Information on potential complications and when to seek medical attention	

Figure 1. Follow-up patient. A. First visit; B. Postoperative; C. 3 months post operative.

Furthermore, children are less likely to engage in behaviors that increase the risk of hemorrhoids, such as prolonged sitting or straining during defecation. The case presented here involves a 4-year-old female patient diagnosed with grade IV internal hemorrhoids, a severe form of the condition characterized by the permanent prolapse of hemorrhoidal tissue. This severity level is unusual in children, making this case particularly noteworthy. The patient's symptoms, including a protruding anal lesion and intermittent constipation, had been present since the age of 1 year and progressively worsened despite various conservative treatment attempts. Hemorrhoids, or piles, are essentially swollen and inflamed blood vessels in the lower rectum and anus. These vascular structures, comprising arteriovenous plexuses and connective tissue, are a normal part of the anal anatomy and play a crucial role in maintaining anal continence. They contribute to the fine control of bowel movements by providing cushioning and aiding in the complete closure of the anal canal. However, under certain conditions, these vascular structures can become engorged and distended, leading to the formation of hemorrhoids. The etiology of hemorrhoids is multifactorial, with contributing factors varying between adults and children. In adults, chronic constipation, straining during defecation, prolonged sitting, obesity, pregnancy, and a low-fiber diet are common risk factors. These factors can increase pressure within the abdominal cavity and impede venous return from the anorectal region, promoting the development of hemorrhoids. In children, the causes of hemorrhoids often differ. While constipation and straining during defecation can contribute, other factors, such as portal hypertension and anatomical anomalies that obstruct venous outflow, may also play a role. Portal hypertension, a condition characterized by elevated pressure in the portal venous system, can lead to the engorgement of hemorrhoidal veins. Anatomical anomalies, such as anorectal malformations, can impede venous return from the anorectal region, predisposing children to hemorrhoids. Hemorrhoids are broadly classified into two main types: internal and external. Internal hemorrhoids originate above the dentate line, a demarcation point in the anal canal, and are typically painless due to the absence of somatic innervation in this region. External hemorrhoids, on the other hand, develop below the dentate line and are often associated with pain, itching, and bleeding, especially during bowel movements. The clinical presentation of hemorrhoids can vary depending on the type and severity of the condition. Internal hemorrhoids may be asymptomatic or may manifest as painless rectal bleeding, often noticed as bright red blood on toilet paper or in the toilet bowl. External hemorrhoids can cause a range of symptoms, including pain, itching, discomfort, and a palpable lump or swelling in the anal area. In some cases, individuals may present with a prolapsing hemorrhoid that protrudes from the anus, particularly during defecation or straining. Hemorrhoids are graded based on their severity, with

grade IV representing the most severe form of internal hemorrhoids. The grading system helps guide treatment decisions and provides a common language for healthcare professionals to discuss the condition. There are four grades. Grade I, hemorrhoids bleed but do not prolapse. Grade II, hemorrhoids prolapse during defecation but reduce spontaneously. Grade III, hemorrhoids prolapse during defecation and require manual reduction. Grade IV, hemorrhoids are permanently prolapsed and cannot be reduced manually. Grade IV internal hemorrhoids, as seen in this case study, are characterized by the permanent prolapse of hemorrhoidal tissue. This means that the hemorrhoids remain outside the anal canal even without straining. This can cause significant discomfort, pain, and bleeding, and can interfere with daily activities. The rare occurrence of grade IV internal hemorrhoids in children makes this case particularly noteworthy. The severity of the condition in this young patient, coupled with the failure of conservative management, necessitated surgical intervention. Accurate diagnosis is crucial for effective management of hemorrhoids in children. A thorough clinical evaluation, including a detailed medical history and physical examination, is the cornerstone of diagnosis. Obtaining a comprehensive medical history is essential to understand the patient's symptoms, their duration, and any associated factors. This includes inquiring about bowel habits, dietary intake, any history of constipation or straining, and any previous treatments attempted. A focused rectal examination is performed to evaluate the anal lesion. This involves visual inspection of the anal area, noting any abnormalities such as swelling, discoloration, or prolapse. Digital palpation may be performed gently to assess the size, location, and characteristics of the hemorrhoids. In some cases, additional investigations may be necessary to confirm the diagnosis or rule out other potential causes of the symptoms. Anorectal manometry test measures the pressure and function of the anal sphincter muscles, which can help assess anal continence and identify any underlying functional abnormalities that may be contributing to the development of hemorrhoids. Endoscopic procedures, such as sigmoidoscopy or colonoscopy, may be performed to visualize the anal canal and rectum, and to rule out other conditions that may mimic hemorrhoids, such as polyps, inflammatory bowel disease, or anal fissures. In this case study, the diagnosis of grade IV internal hemorrhoids was confidently made based on the clinical presentation and physical examination findings. The patient's history of a progressively worsening protruding anal lesion, accompanied by intermittent constipation, along with the physical examination findings of a circular, prolapsing lesion at the anal orifice, were consistent with grade IV internal hemorrhoids. Early intervention and appropriate management are crucial for improving the quality of life for children with hemorrhoids. The choice of treatment depends on the severity of the condition, the presence of associated symptoms, and the child's overall health. Conservative measures are often the first line of treatment for hemorrhoids in children, especially in less severe cases. These measures aim to relieve symptoms, prevent complications, and address underlying contributing factors. Increasing fiber intake is crucial in managing hemorrhoids. Fiber adds bulk to the stool, making it easier to pass and reducing the need for straining. Children should be encouraged to consume fiber-rich foods, such as fruits, vegetables, and whole grains. Proper hydration is essential for maintaining soft stools and preventing constipation. Children should be encouraged to drink plenty of water throughout the day. In some cases, stool softeners may be recommended to further soften the stool and ease bowel movements. These can be particularly helpful for children who have difficulty increasing their fiber intake or who experience persistent constipation. Encouraging regular bowel habits and avoiding prolonged sitting on the toilet can also help manage hemorrhoids. Children should be encouraged to use the toilet when they feel the urge to defecate and to avoid straining or delaying bowel movements. In cases of severe or persistent hemorrhoids that do not respond to conservative

management, surgical intervention may be considered. Several surgical procedures are available for treating hemorrhoids in children, including hemorrhoidectomy, rubber band ligation, and sclerotherapy. The choice of procedure depends on various factors, such as the type and severity of hemorrhoids, the child's overall health, and the surgeon's expertise. In this case study, the severity of the patient's condition and the failure of conservative management to provide adequate relief led to the decision to proceed with surgical intervention. The chosen procedure was a Whitehead hemorrhoidectomy, a technique that involves the complete excision of the hemorrhoidal tissue. This approach was deemed appropriate due to the circumferential nature of the prolapsing hemorrhoid and the patient's young age, which favored a definitive solution to minimize the likelihood of recurrence. The successful outcome of this case highlights the importance of early intervention and appropriate management in addressing hemorrhoids in children. By promptly addressing the condition and tailoring treatment to the individual needs of the patient, healthcare professionals can help alleviate symptoms, prevent complications, and improve the overall well-being of children with hemorrhoids. While hemorrhoids are a possible cause of anal symptoms in children, it is important to consider other conditions that may mimic hemorrhoids. Anal fissures are small tears in the lining of the anal canal that can cause pain, bleeding, and itching. Perianal abscess is a collection of pus in the tissues surrounding the anus, which can cause pain, swelling, and redness. Rectal prolapse is a condition in which the rectum protrudes through the anus. Polyps are growths in the lining of the rectum or colon that can sometimes cause bleeding. Conditions such as Crohn's disease or ulcerative colitis can cause inflammation in the digestive tract, including the rectum and anus, leading to symptoms such as bleeding, pain, and diarrhea. A thorough clinical evaluation, including a detailed medical history and physical examination, is essential to differentiate hemorrhoids from other possible causes of anal symptoms in children. In some cases, additional investigations, such as anorectal manometry or endoscopy, may be necessary to confirm the diagnosis. Hemorrhoids, even in less severe forms, can significantly impact a child's quality of life. The discomfort, pain, and bleeding associated with hemorrhoids can interfere with daily activities, such as playing, sleeping, and attending school. Children with hemorrhoids may also experience emotional distress, embarrassment, and social isolation. Early intervention and effective management of hemorrhoids are crucial for minimizing the impact of the condition on children's lives. By addressing the symptoms and underlying causes of hemorrhoids, healthcare professionals can help children regain their comfort, confidence, and overall well-being. Patient and family education plays a vital role in the successful management of pediatric hemorrhoids. Providing comprehensive information about the condition, its causes, and treatment options can empower families to make informed decisions and actively participate in their child's care. Education should include guidance on lifestyle modifications that can help prevent and manage hemorrhoids, such as increasing fiber intake, ensuring adequate fluid consumption, and establishing regular bowel habits. Families should also be informed about potential complications and when to seek medical attention. By actively involving patients and their families in the management of hemorrhoids, healthcare professionals can promote adherence to treatment plans, improve outcomes, and enhance the overall quality of care.[11-14]

While the exact etiology of hemorrhoids in children remains unclear, several factors are believed to contribute to their development. Unlike adults, where lifestyle factors like prolonged sitting and low-fiber diets play a significant role, pediatric hemorrhoids are often linked to different causes. Chronic constipation, leading to straining during defecation, is a common factor in both children and adults. Straining increases pressure on the veins in the anal canal, causing them to distend and potentially leading to hemorrhoids. Portal hypertension condition, characterized by

elevated pressure in the portal venous system, can also contribute to hemorrhoids in children. The increased pressure can cause backflow of blood into the hemorrhoidal veins, leading to their engorgement and the formation of hemorrhoids. Anorectal malformations, which are congenital anomalies affecting the development of the anus and rectum, can also predispose children to hemorrhoids. These malformations can obstruct venous outflow from the anorectal region, increasing pressure and contributing to hemorrhoid formation. In this case study, the patient's history of intermittent constipation since the age of 8 months may have been a contributing factor to the development of her hemorrhoids. Further investigation may be needed to rule out other potential causes, such as portal hypertension or anatomical anomalies. Constipation is a common digestive problem characterized by infrequent bowel movements, difficulty passing stools, and hard or dry stools. It is a frequent complaint among children and can contribute to various anorectal issues, including hemorrhoids. In the context of hemorrhoids, constipation plays a significant role due to the increased pressure it exerts on the veins in the anal canal. When a child is constipated, they often strain during defecation in an attempt to pass the hard or dry stools. This straining increases intra-abdominal pressure, which in turn impedes venous return from the anorectal region. The increased pressure and restricted blood flow can cause the veins in the anal canal to become engorged and distended, leading to the formation of hemorrhoids. Moreover, chronic constipation can also lead to the hardening and enlargement of stool, further exacerbating the problem. The passage of large, hard stools can irritate and injure the delicate tissues in the anal canal, making them more susceptible to hemorrhoid formation. Portal hypertension, a condition characterized by elevated pressure in the portal venous system, is another significant contributing factor to hemorrhoids in children. The portal vein is responsible for carrying blood from the digestive organs to the liver. When there is an obstruction or increased resistance to blood flow in the portal vein, pressure within the portal system rises, leading to portal hypertension. This elevated pressure can cause backflow of blood into the hemorrhoidal veins, which are part of the portal venous system. The increased blood volume in these veins causes them to engorge and distend, leading to the formation of hemorrhoids. Liver cirrhosis is a condition in which scar tissue replaces healthy liver tissue, impeding blood flow through the liver and leading to portal hypertension. Portal vein thrombosis is the formation of a blood clot in the portal vein, obstructing blood flow and causing portal hypertension. Congenital hepatic fibrosis is a rare genetic disorder that causes scarring and abnormalities in the liver, leading to portal hypertension. Anatomical anomalies, particularly those affecting the development of the anus and rectum, can also predispose children to hemorrhoids. These anomalies, often referred to as anorectal malformations, can disrupt the normal anatomy and function of the anorectal region, leading to various complications, including hemorrhoids. One way in which anorectal malformations can contribute to hemorrhoids is by obstructing venous outflow from the anorectal region. The malformations can cause narrowing or blockage of the anal canal or rectum, impeding blood flow and increasing pressure within the hemorrhoidal veins. This increased pressure can cause the veins to engorge and distend, leading to the formation of hemorrhoids. Imperforate anus is a condition in which the anal opening is absent or closed. Rectal atresia is a condition in which the rectum is closed or absent. Rectovaginal fistula is an abnormal connection between the rectum and the vagina. Rectourethral fistula is an abnormal connection between the rectum and the urethra. In addition to the major contributing factors mentioned above, several other factors may also play a role in the development of hemorrhoids in children. A diet low in fiber can contribute to constipation, which, as discussed earlier, is a major risk factor for hemorrhoids. Children who consume a diet lacking in fruits, vegetables, and whole grains may be more

prone to constipation and hemorrhoids. Some studies suggest that there may be a genetic predisposition to hemorrhoids. Children with a family history of hemorrhoids may be more likely to develop the condition themselves. Certain medications, such as those used to treat attention-deficit/hyperactivity disorder (ADHD) or depression, can have constipation as a side effect, potentially increasing the risk of hemorrhoids. Some underlying medical conditions, such as inflammatory bowel disease or cystic fibrosis, can also increase the risk of hemorrhoids in children. Given the diverse range of potential contributing factors in pediatric hemorrhoids, a comprehensive evaluation is crucial to identify the underlying causes and guide appropriate management. A thorough medical history, including information about the child's bowel habits, dietary intake, any history of constipation or straining, family history of hemorrhoids, and any underlying medical conditions, can help identify potential contributing factors. A focused rectal examination can help assess the severity of the hemorrhoids and rule out other possible causes of anal symptoms. In some cases, additional investigations, such as anorectal manometry or endoscopy, may be necessary to confirm the diagnosis and identify any underlying anatomical or functional abnormalities. By conducting a comprehensive evaluation, healthcare professionals can gain a better understanding of the contributing factors in each individual case and tailor management strategies accordingly.[15-17]

Conservative management strategies are typically the first line of treatment for pediatric hemorrhoids, especially in less severe cases. These strategies aim to relieve symptoms, prevent complications, and address underlying contributing factors, such as constipation and straining. Increasing fiber intake is crucial in managing hemorrhoids. Fiber adds bulk to the stool, making it easier to pass and reducing the need for straining. Children should be encouraged to consume fiber-rich foods, such as fruits, vegetables, and whole grains. Proper hydration is essential for maintaining soft stools and preventing constipation. Children should be encouraged to drink plenty of water throughout the day. In some cases, stool softeners may be recommended to further soften the stool and ease bowel movements. These can be particularly helpful for children who have difficulty increasing their fiber intake or who experience persistent constipation. Encouraging regular bowel habits and avoiding prolonged sitting on the toilet can also help manage hemorrhoids. Children should be encouraged to use the toilet when they feel the urge to defecate and to avoid straining or delaying bowel movements. In the case study, the patient had undergone various conservative treatment attempts, including dietary modifications, stool softeners, and behavioral interventions. However, these measures provided only temporary relief and did not prevent the progression of her condition, necessitating surgical intervention. Dietary modifications play a crucial role in managing hemorrhoids in children. One of the primary goals of dietary modifications is to increase fiber intake. Fiber is a type of carbohydrate that cannot be digested by the human body. It passes through the digestive system relatively intact, adding bulk to the stool and softening its consistency. Increasing fiber intake can help relieve constipation, which is a major contributing factor to hemorrhoids in children. By adding bulk to the stool, fiber makes it easier to pass, reducing the need for straining during defecation. Straining increases pressure on the veins in the anal canal, which can lead to the formation or worsening of hemorrhoids. Children should be encouraged to consume a variety of fiber-rich foods, including fruits, vegetables, whole Grains, legumes. It is important to gradually increase fiber intake to avoid potential side effects such as gas and bloating. Drinking plenty of water is also essential when increasing fiber intake, as fiber absorbs water and can lead to dehydration if fluid intake is not adequate. Proper hydration is essential for maintaining soft stools and preventing constipation, which, as discussed earlier, is a major contributing factor to hemorrhoids. Children should be encouraged to drink plenty of water throughout the day. The amount of fluid a child needs will vary

depending on their age, activity level, and climate. In addition to water, other sources of fluids, such as milk, juice, and fruits and vegetables, can also contribute to hydration. However, it is important to limit sugary drinks, as they can contribute to other health problems. In some cases, stool softeners may be recommended to further soften the stool and ease bowel movements. Stool softeners work by drawing water into the stool, making it easier to pass. They can be particularly helpful for children who have difficulty increasing their fiber intake or who experience persistent constipation despite dietary and lifestyle modifications. Several types of stool softeners are available over-the-counter. It is important to consult with a healthcare professional before giving any medication to a child, including stool softeners. Behavioral interventions can also play a role in managing hemorrhoids in children. These interventions aim to encourage regular bowel habits and reduce straining during defecation. Encourage children to use the toilet at the same time each day, preferably after meals when the natural gastrocolic reflex is strongest. Children should be encouraged to avoid spending prolonged periods on the toilet, as this can increase pressure on the veins in the anal canal. Praise and reward children for following their toilet routine and avoiding straining. Patient and family education is crucial for the success of conservative management strategies. Healthcare professionals should provide comprehensive information about hemorrhoids, their causes, and the rationale for conservative management. Families should be educated about the importance of dietary modifications, adequate fluid intake, and behavioral interventions. They should also be informed about potential side effects of stool softeners and when to seek medical attention. While conservative management strategies are generally safe and effective for managing hemorrhoids in children, there are some challenges that healthcare professionals and families may encounter. It can be challenging to convince children to make dietary changes, especially if they are used to eating a diet low in fiber. Patience, persistence, and creative approaches to incorporating fiber-rich foods into the child's diet are essential. Ensuring adequate fluid intake can also be challenging, especially in children who are picky drinkers or who are involved in activities that make it difficult to access water regularly. Implementing behavioral interventions can require significant effort and consistency from both the child and their caregivers. Positive reinforcement and support are crucial for success. Healthcare professionals play a vital role in the conservative management of pediatric hemorrhoids. A thorough clinical evaluation, including a detailed medical history and physical examination, is essential to confirm the diagnosis of hemorrhoids and rule out other possible causes of anal symptoms. The management plan should be tailored to the individual needs of the child, taking into account their age, severity of symptoms, and any underlying contributing factors. Healthcare professionals should educate patients and their families about hemorrhoids, their causes, and the rationale for conservative management. They should also provide ongoing support and encouragement throughout the treatment process. Regular follow-up appointments are necessary to monitor the child's progress and adjust the treatment plan as needed. In some cases, a multidisciplinary approach may be beneficial for managing pediatric hemorrhoids. This may involve collaboration with other healthcare professionals, such as a dietitian, gastroenterologist, or psychologist. A dietitian can provide guidance on increasing fiber intake and making other dietary modifications. A gastroenterologist can help manage any underlying digestive issues that may be contributing to hemorrhoids. A psychologist can provide support and guidance for children who are experiencing emotional distress or behavioral challenges related to their condition.[18-20]

4. Conclusion

This case underscores the importance of recognizing and effectively managing hemorrhoids in pediatric patients. The successful outcome of this case

highlights the effectiveness of surgical intervention, specifically Whitehead hemorrhoidectomy, in resolving severe cases of pediatric hemorrhoids. The patient's complete recovery, with no post-operative complications such as secondary wound healing, anal stricture, or mucosal ectropion, emphasizes the efficacy of the surgical procedure. The case also emphasizes the importance of a comprehensive approach to patient care, including diligent follow-up. Regular post-operative assessments ensured the early detection and management of any potential complications. Patient education played a crucial role in the recovery process, empowering the patient and her family to actively participate in her care and prevent recurrence. While conservative treatment options may be effective for less severe cases, this case demonstrates that surgical intervention can be a safe and effective solution for severe pediatric hemorrhoids. The successful outcome of this case contributes to the limited body of literature on pediatric hemorrhoids and provides valuable insights for healthcare professionals managing similar cases. It is crucial for healthcare professionals to remain vigilant in recognizing and managing this condition in children. Early diagnosis, appropriate treatment strategies, and comprehensive patient care are essential for preventing complications and improving the quality of life for children with hemorrhoids. Further research is needed to better understand the long-term outcomes of surgical intervention for pediatric hemorrhoids and to refine treatment strategies for this patient population.

5. References

1. García-Redondo M, Fernández-Alonso AM, Ferrer-Márquez M, Rubio-Gil F, Reina Duarte Á. Validation and adaptation to Spanish of the quality-of-life questionnaire in patients with hemorrhoidal disease and anal fissure (HEMO-FISS-CdV). Rev Esp Enferm Dig. 2024; 116(9): 472–7.
2. Campos FG, Moraes PGM, Martins PV, Bustamante-Lopez LA, Martinez CAR. A proposal for modification of Ferguson's closed hemorrhoidectomy technique aiming better outcomes. J Coloproctology. 2024; 44(03): e218–22.
3. Sun Z, Wu Y, Zhao X-F, Chen Y. The clinical effect of electrocoagulation plus traditional external stripping and internal ligation in the treatment of mixed hemorrhoids. Asian J Surg. 2024.
4. Miga-Orczykowska N, Lemieszek P, Sajkiewicz I, Rudnicka K. Comparison of non-surgical methods for treating hemorrhoids. Qual Sport. 2024; 19: 54199.
5. Rao AG, Nashwan AJ. Redefining hemorrhoid therapy with endoscopic polidocanol foam sclerobanding. World J Gastroenterol. 2024; 30(36): 4021–4.
6. Ponte SB, Oliveira J, Rei A, Salgueiro P. Treatment of hemorrhoidal disease in patients with liver cirrhosis: a systematic review. GE Port J Gastroenterol. 2024; 1–14.
7. Falsarella PM, Katz M, Affonso BB, Galastri FL, Arcuri MF, Motta-Leal-Filho JM da, et al. Angiographic description of the superior rectal artery and its anatomical variations in patients undergoing embolization of the superior rectal arteries in hemorrhoidal disease treatment. Einstein (Sao Paulo). 2024; 22: eAO0688.
8. Pavidapha A, Sajan A, Lerner J, Bagla S, Kasimcan MO, Isaacson A, et al. Angiographic analysis of anatomical variants in 242 hemorrhoidal artery embolization. J Vasc Interv Radiol. 2025.
9. Zakaria R, Amin MM, Abo-Alella HA, Hegab YH. Laser hemorrhoidoplasty versus hemorrhoidectomy in the treatment of surgically indicated hemorrhoids in inflammatory bowel patients: a randomized comparative clinical study. Surg Endosc. 2025; 39(1): 249–58.
10. Huang Y-M, Ouyang D. Clinical observation on prognosis of mixed hemorrhoids treated

with polidocanol injection combined with automatic elastic thread ligation operation. World J Gastrointest Surg. 2025; 17(1).
11. Pahlepi AL, Pradana IR, Azizah R. Comparison of stapled hemorrhoidopexy with traditional excisional surgery for hemorrhoidal disease: An updated systematic review. the int j of med science and health. 2025; 8(1): 39–53.
12. Poskus T, Sabonyte-Balsaitiene Z, Jakubauskiene L, Jakubauskas M, Stundiene I, Barkauskaite G, et al. Preventing hemorrhoids during pregnancy: a multicenter, randomized clinical trial. BMC Pregnancy Childbirth. 2022; 22(1): 374.
13. Yildiz T, Aydin DB, Ilce Z, Yucak A, Karaaslan E. External hemorrhoidal disease in child and teenage: Clinical presentations and risk factors. Pak J Med Sci Q. 2019; 35(3): 696–700.
14. Khamraev A, Juraev S, Akmollaev D. Hemorrhoids in children. Tavricheskiy Mediko-Biologicheskiy Vestnik. 2022; 23(3): 73–7.
15. Hamraev AZ, Jorayev SS. Features of the clinical course and complex treatment of hemorrhoids in children. Neonatol Surg Perinat Med. 2022; 12(3(45)): 55–9.
16. Grossmann O, Soccorso G, Murthi G. LigaSure hemorrhoidectomy for symptomatic hemorrhoids: First pediatric experience. Eur J Pediatr Surg. 2015; 25(4): 377–80.
17. Aung PS, Kholostova VV. Hemorrhoids in the pediatric population: Clinical manifestations, diagnostics and treatment. Russ J Pediatr Surg. 2019; 23(3): 119–23.
18. Sarac F. Approach to hemorrhoid in children: Retrospective evaluation of our patients. Turk Assoc Pediatr Surg. 2020.
19. Graziose BB, Rogers PL, Greenwald JR, Reeves PT. Neonatal hemorrhoids: Getting to the bottom of an uncommon finding. J Pediatr Gastroenterol Nutr. 2022; 75(4): e87–8.
20. Watanabe T, Ohno M, Tahara K, Tomonaga K, Ogawa K, Takezoe T, et al. Efficacy and safety of sclerotherapy with polidocanol in children with internal hemorrhoids. Pediatr Int. 2021; 63(7): 813–7.