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Case Report

Laser Pilonidoplasty in Pilonidal Sinus: A Case Report

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Abstract

Pilonidal sinus is a chronic inflammatory condition which is caused due to involution of hair fragment into the gluteal or natal region. It is also called as inflammatory disease of gluteal region. It is twice as common in males between 15-25 years of age. Occasionally it occurs in different region like umbilicus, nose, groin, axilla, clitoris, interdigital tract, suprapubic area, penis or occiput. The present report highlights the condition in a 24-year-old male with discharging sinus in the gluteal cleft and itching from the past one-month. Diagnosis of the diseases is straightforward clinically with discharging sinus and multiple pits in the natal cleft, and choice of particular surgical approach was laser pilonidoplasty. The procedure was performed under local anesthesia with 1470 nm diode laser as beam source, with radial fibre, which would destroy the deep fistula system of the sinus. A 600-micron fibre with a special glass top (CORONA) fistula probe fibre with power settings at 10 watts, and energy settings at 100 joules per cm was used. The patient recovered completely and returned to work within 2 days. The procedure does not involve any painful dressings post operatively. In our experience, laser pilonidoplasty is the choice of procedure for the disease as there are less chances of morbidity and recurrence and better chances of early healing and cure of the disease. Hair removal is maintained until wounds are healed, after which laser hair removal is recommended of the local area. The lasers thus, prove to be an attractive treatment alternate for pilonidal sinus.

Keywords: *Pilonidal Sinus, Laser Surgical Procedure, Pilonidoplasty.*

Introduction

Pilonidal disease was first described in 1880 by Hodges and it occurs generally in the cleavage between the natal

Cleft and causes severe discomfort, embracement and losing of working hour in thousands of people, most commonly males. Its incidence rate is twice in males as compare to females.[1] The name of the disease pilonidal is actually derived from the Latin word meaning "nest of hair". A similar condition occurs in different regions of the body like umbilicus, nose, groin, axilla, clitoris, interdigital tract, suprapubic area, penis or occiput. A number of surgical techniques have been described for the management of pilonidal sinus, with no optimal method defined yet. Despite many techniques described in the current medical literature, recurrence rates remain high. [2,3] The present report highlights the condition in a 24-year-old male with discharging sinus in the gluteal cleft which was surgically treated using laser pilonidoplasty.

Case Report

A 24-year-old male patient presented us with the complaint of discharge sinus in the gluteal cleft and itching associated with pain from the past one month. The local examination revealed multiple minimally tender pits in the natal cleft. All necessary tests were done and choice of particular surgical approach was laser pilonidoplasty.

The sinus tracts were cleaned with hydrogen peroxide and copious saline. A large amount of hair and granulation tissue was debrided and pilonidal cavity was excised entirely. The surgical procedure was performed under local anaesthesia (Dupivacaine+Xylocaine+Saline in the ratio of 1:1:1) with 1470 nm diode laser as beam source, with radial fiber, which would destroy the deep fistula system of the sinus. A 600-micron fiber with a special glass top (CORONA) fistula probe fibre with power settings at 10 watts, and energy dosage settings at 100 joules per cm was used and it was inserted through the sinus opening. The total energy used was 241 J. The pits were excised completely and dressing was placed. The patient was discharged the same day. The patient was followed post-operatively in the surgery clinic after 5 days, 15 days, 1 month, 3 months and 6 months. Patients returned to their work in a period of two days. Patient was advised to use povidone iodine powder for dressing and bathing instructions were given. Hair removal was maintained until wounds are healed, after which laser hair removal was recommended of the local area.

Discussion

Pilonidal sinus disease (PSD) is an acquired chronic disorder which is located in the natal cleft, with presence of hair follicles in the gluteal crease as the main etiological factor for this disease.[3] Accumulation of hair over time, along with sweating and dirt of the area, leads to the creation of a subcutaneous cyst in the intergluteal region. Formation of a sinus occurs due to the natural progression of the disease, as the cyst tries to exude itself. [3,4] Inflammation occurs in pilonidal cyst thus forming an abscess requiring surgical drainage. Approximately 4:1 ratio of males and females was found and its presence was recorded most commonly in the young male population. It is also associated with certain tenures involving a lot of time sitting, such as students, office workers and truck drivers. High social impact due to its location and presentation is recorded in this disease, with pain in the sacrococcygal region being the most common clinical symptom. [3-6] For management of pilonidal sinus disease a number of surgical techniques have been described, with no ideal method defined yet. Ideal treatment should aim in fewer complications, less pain, patients' prompt resume to normal activities, but most notably low recurrence rates. Some of the most commonly used methods are Karydaki's flap reconstruction, Limberg's transposition flap and complete surgical excision of the cyst, with the wound left to heal under primary or secondary purpose. [4,7,8] Surgical

management of PSD is a demanding as well as challenging procedure. Many techniques have been described in the current medical literature, but recurrence rates are still high. In our experience, this is probably due to inadequate excision of the cyst or sinuses during the surgery, or patient's poor fulfillment with post-operative instructions. It is very important to point out the importance of hair shaving around the sacrococcygeal region post-operatively as new hair can accumulate during healing, especially if the procedure involve open wound heal by secondary intention, running usually to recurrence of PSD. Some instructions are very important for patients like to wash the surgical site daily, since dirt and sweating are few main factors that lead to recurrence and poor healing results. [3,9,10]

Treatment through therapeutic methods of PSD is difficult due to low efficacy. Clinical assessment is necessary, and the choice of proper management depends on condition of disease. In the case of a shallow (depth less than 2cm) lesion with protruding hair, one can go for conservative treatment. However, the patient should acknowledge the risk of developing an abscess on every stage of treatment. Conservative treatment is only possible in the stage of non-infected pilonidal cysts. Surgical intervention is required in every case of abscess, whereas conservative treatment includes epilation (permanent removal of hairs, e.g., using a laser), thorough intergluteal hygiene and ozone therapy.11 Conservative methods such as local radiation, thermal destruction, cryosurgery, phenol injection were used in the past. Now they are no longer recommended due to high rate of complications and patient's discomfort. While operating through conservative methods, it should be remembered to remove all the hair from the pilonidal sinus accessible through the skin opening.9

Application of fibrin glue for sinus closure is also a type of conservative method. This method may only be used in patients with no history of abscesses, early lesions, with no history of surgical treatment and have only single opening of the pilonidal sinus. An interesting minimally invasive procedure was proposed by Neola et al. During a scarless outpatient ablation of pilonidal cyst (SOAP), Farrell applicator is introduced to the cyst opening under local anesthesia, which is a device used in laryngology. The wound is left 15 days for granulation, if it does not heal after that time, the procedure should be repeated. If wound does not close even after another 15 days, the patient is qualified for surgery. Authors of this method emphasized minimally-invasive character and possibility of radicalization in the case of failure.12 In 1965, a description of a similar therapeutic method using a fine nylon brush by Lord and Millar has been made. However, data regarding efficacy of that method in long-term observation has never been published.13 Another interesting non-invasive treatment method is Endoscopic Pilonidal Sinus Treatment (EPSiT). The procedure involves use of electric knife in order to obtain hemostasis and remove remaining granulation tissue and use a wide range of endoscopic devices. [10,11]

It seems that in the case of uncomplicated pilonidal sinus, a trial of conservative or minimally invasive treatment should be attempted before the decision is made for a radical extensive surgery. Surgical procedure by doing incision, rinsing and drainage is applied when abscess formation is occurring secondary to pilonidal sinus. In the case of extensive abscesses, a lateral incision technique may be applied. In both cases, after the acute phase has resolved, radical treatment is necessary.11 No identical management scheme has yet been developed.

Fusiform resection of pathological tissue up to sacral and gluteal fascia is one of the surgical methods. The wound is left open for granulation. It requires a long-term therapeutic process with proper wound care but this method has a usually high success rate. Seriou's complications may occur if not following the proper care. Excision of pilonidal

cyst with healthy tissue margin and primary wound closure is another method of treatment but this method is less effective and only recommended for lesions located superficially in the subcutaneous tissue and less inflamed. Alternative methods with similar efficacy although more difficult technically involve: Bascom II, plasty using Limberg flap, V-Y plasty, Z-plasty, Karydakis plasty and others. [4,7,10]

The 1470 nm diode laser as beam source with radial fibre may be the effective tool in treating the pilonidal sinus disease. By removing hair and hair fragments from the site, interruption of etiological source of pilonidal sinus disease can be accomplished. Post-operative results were good, as no dressing was used which causes pain to patient. A study done by Jain et al., also suggested that Nd: YAG laser is an effective minimally invasive tissue saving surgical intervention for the treatment of refractory PNS lesions.14 A study was done by Christine et al., to see the effect of laser surgery and results shows that around 81% of the patients reported as symptom free after laser procedure and they concluded that laser may prove to be an attractive treatment alternative for pilonidal sinus.15 A similar case report by Christine S Lindholt, suggested that the laser treatment use to operate the procedure could be a very attractive alternative to open surgery.16 Pilonidal disease is a complex condition which causes discomfort to the sufferer and cause direct loss to healthcare system and indirect loss to society. Surgical procedure is a choice of treatment which causes fast recovery of the patient. Apart from surgical technique, standard wound care is essential.

Conclusion

Pilonidal disease is a common anorectal problem and a surgical challenge. The 1470 nm diode laser may be an effective tool in the treatment of pilonidal sinus disease. By eliminating the source of hair and hair fragments that course along the surface of the lower buttocks, interruption of the etiologic source for pilonidal sinus disease can be accomplished.

Conflict of Interest - None

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Biography

Dr. Jaya Maheshwari is a prominent dignified surgeon and has pursued minimal access surgery moving further in her career. During her academic journey she had been awarded a couple of fellowships in laparoscopy from the top institutes. Ongoing with her pursuit for academic excellence she specialized and got certified in advance proctology and lasers. She is also now the co-convenor for the FIAGES BOARD. She presently heads the Department of Advance Proctology and Department of Laparoscopic Surgery in Jyoti Hospital, Jaipur. Her rich clinical career in performing thousands of surgeries over a span of nearly one and half decade, and her vision for quality and excellence made her establish a first of its kind department, specifically in proctocare and minimal access surgeries. The department offers a plethora of surgeries and the most advance techniques, like the STARR for severe constipation, staplers and lasers for piles, fistula and fissures, and various types of mesh repairs for all hernias.

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