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The Results of Lay Open Method Pilonidal Sinus Surgery Under Local Anesthesia with Laser Hair Reduction

WALID IBRAHIM, M.D.* and ABDELHAMID DEGHIDI, M.D.**

The Department of General Surgery in Aljazeera Medical Complex Riyadh, Saudi Arabia, Master of General Surgery, Ain Shams University, MRCS, London and Physiotherapy in Aldawk Polyclinic, Master of Physiotherapy, Cairo University***

Abstract

Background: Pilonidal Sinus is a common suppurative disease in young adults which presented usually between the ages of 15 to 30 and requires definitive surgical treatment mostly open wound technique in concomitant with LASER hair reduction to avoid recurrence.

Aim of Study: The objective of this study is to to identify the effect of total excision of the whole sinus tract with LASER hair reduction of sacrococcygeal region in management of patients with pilonidal disease.

Patients and Methods: 160 patient participants were included in this study who met the inclusion criteria. They visited the surgery clinic in Al Jazeera Medical Complex, Riyadh, Saudi Arabia over a period of 18 months, from June 2022 to November 2023, the age was between 15 and 32 and the procedure was done by the surgical registrar and the medical nurse in a small operating room under local xylocaine infiltration. The procedure consisted of excision of the whole sinus with good hemostasis and the wound was left opened with gauze covering it with frequent dressing until complete healing with LASER ablation of the hair at the sacrococcygeal region for 80 patients only and the other 80 patients underwent for laser reduction.

Results: The study showed that concomitant LASER removal of the hair and open surgery method under local anesthesia is highly successful in treating pilonidal sinus disease with low recurrence rate.

Conclusion: Pilonidal sinus surgery can be done away from the general anesthesia risks with low cost and good results and LASER hair reduction reduces the recurrence rate.

Key Words: Pilonidal Sinus – Laser Hair Reduction.

Correspondence to: Dr. Walid Ibrahim, The Department of General Surgery in Aljazeera Medical Complex Riyadh, Saudi Arabia, Master of General Surgery, Ain Shams University, MRCS, London

Introduction

PILONIDAL sinus is a subcutaneous disease located at the sacro-coccygeal region which occurs twice as often in men as in women at the age between 15 to 30 and presented in two form acute and chronic ones and it can cause discomfort, limitation of mobility and deterioration of the quality of life of the patient **[1].** There are predisposing factors for the disease including deep natal cleft, lack of hygiene, accumulation of skin debris and piercing of the hair into the skin forming hair nest, also obesity has a role **[1,2].**

The presentation varies between pain, painful swelling and bloody discharge over the gluteal cleft (Fig. 1). Diagnosis is clinical by direct inspection of an abscess or multiple opening with hair emerging from that opening (Figs. 2,3). Excision is the standard definitive treatment and varied world widely from lay open wound, closed wound and flaps technique but they are facing the problem of recurrence **[4].**

There are many surgical methods for treatment of the disease. Lay open method includes the resection of the sinus whether by a wide range excision of cavity and sinus or only resection of the sinus with a minimal incision, also the removal of the hairs and curettage of the cavity. The limited lay open method is our concern in this study as the healing is much faster, and hospitalization duration is shorter than wide excision **[5,6].** Primary suture While it is easy to close the wound in the middle line after the pilonidal sinus cavity and tracks are extracted, it also brings the problems such as the tension of the sutures and increase of this tension with movements. The recurrence rate is found as 18.4% **[7].** In Karydakis technique, after excision of the pilonidal sinus, a deep flap in the contralateral

side including subcutaneous tissue is formed then sutured to the sacral fascia. By this way the midline is shifted and makes the primary closure of the skin on the lateral of the midline. Karydakis has indicated that suture line formed in midline will produce a serious tension following strong gluteal muscle spasms, and for this reason, the midline should be shifted **[8]**. Plasties, these methods have a broad range of variety and they are developed with indications related to plastic surgery and are used for the purpose of wound closure following pilonidal sinus surgery. Today the most common plasty methods are Limberg flap, V-Y plasty, and Z plasty. However, wound infection, wound separation and seroma after V-Y plasty are reported respectively **[9]**. Minimally invasive techniques are being used more frequently by the patients and surgeons instead of wide excisions. Endoscopic pilonidal sinus surgery is a new invasive treatment procedure in pilonidal sinus treatment. In this technique, pilonidal sinus, pilonidal fistula tract are extracted endoscopically, hair follicles and keratin debris are destructed. Minimal invasive therapies has the advantages such as earlier discharge from the hospital, quicker return to work, **[10]**. The most popular method of surgery is the lay open one which is an excision technique without closure as it has very low recurrence rate specifically if we add hair removal by laser as the hair has a great contributing cause for the disease development **[11]**. The objective of the study to clarify that we can do simple and limited lay open method successfully for pilonidal sinus under local anesthesia in the clinic away from general anesthesia and admission in the hospital with low cost and short time and addition of hair reduction at the gluteal cleft by laser will play a key role in the recurrence of the disease, we emphasized that the more hair reduction the more low recurrence rate of the disease (Fig. 4).

Patients and Methods

Methods:

This prospective study was conducted at Aljazeera Medical Complex, Riyadh, Saudi Arabia where 160 patients underwent open wound surgery under local anesthesia for pilonidal sinus disease over the period of 18 months from 1 June 2022 to 30 November 2023. These patients divided into two groups, 80 patient with laser hair reduction (group E) and 80 patients without laser hair reduction (group C) (Fig. 5). The medical Complex ethical committees approved the study and the technique was arranged through the surgery registrar and the nurse of the clinic as a one day case surgery with approval from the patient with written consent before starting of the procedure.

Patient with inclusive criteria such as who diagnosed with the disease from health care system, with the chronic form of the disease, recurrent cases after closed or open method surgery (Fig. 5), above 15 years old, understanding the procedure and agreed for long term dressing after surgery up to three months, chosen the local anesthesia over the general anesthesia and signed written consent.

Patient with an abscess presentation was drained initially then after one month included in the study. Any case refused the procedure or asked for general anesthesia was excluded from the study. The procedure was commenced by prone position of the patient then local xylocaine 1% infiltration around the sinus subcutaneously with maximum dose of 3mg per kg (equal to 21ml of xylocaine 1%), then plaster was used to gaped the natal cleft as the sinus is being clear and visible. Tasting of the anesthesia was done by pin brick technique then probing of the sinus and limited excision was started around the probe under clean vision using the diathermy and meticulous homeostasis to find out any side track and excise it. Good control of any bleeding point was done either by diathermy or suturing with absorbable thread and if the patient felt any pain during the procedure, additional anesthesia was given, then the wound left opened without any suturing and a lot of gauze and packs left inside the wound with plaster over it, then the patient was observed in the recovery room for one hour in the prone position for fear of bleeding and at that time single dose of IM diclofenac was given to relieve any upcoming pain. After that, the patient allowed to go home with instructions to have rest at bed for 2 hours, then he can be ambulant, medication was only pain killer on demand and no antibiotic was given to the patient and revisit the clinic after 2 days for dressing of the wound and continue the laser session for hair removal as it has no effect on the wound for group E only. After 2 days of surgery, the wound wall is clean and having small points of bleeding stopped easily with gauzes and patient felt little pain with removal of the gauze, then several visit to the clinic was arranged for dressing until complete healing of the wound concomitant with hair removal sessions for group E only. During the study one case in each group returned with gauze soaked with blood which was changed with new one with compression to stop bleeding, all of patients was requested for follow-up and dressing at the clinic every 3 days for two weeks then after granulation tissue being established at the wound, daily wash with tap water and soap was advised then covering of the wound. In group E, All laser sessions was conducted to ensure hair removal, The laser used was Alexandrite laser, every patient get from 6 to 8 sessions and each session was followed by retouch session after 2 week. Laser can be done safely and has no effect on the wound and most of the patient has commitment with the laser hair reduction, 2 patient missed 3 sessions of laser and hair started to pierce the wound midline again (Fig. 6). The duration of the dressing in the clinic varied from 35 days to 90 days, 10 patients healed within 35 days, 40 patient healed within 45

days, 15 patient healed within 60 days and 5 patient healed within 90 days. Follow-up of the recurrence was all through the study without any recorded recurrent cases. In group C, the healing process was longer from 60 to 100 days with 10 recurrent cases, the wound was filled with granulation tissue, hair and skin debris.

Results

160 cases was included in this study, the median age was 23.5 (15-32), the sex distribution was 100 male (62.50%) and 60 female (37.50%), most of the patient were non smoker without any co morbidity in both groups, one half of the patient reported positive family history of pilonidal sinus and prolonged sitting with obesity, 135 cases presented as a chronic cases (83.375%) and 25 as acute abscess (15.25%) which were included in the study after one month of the drainage. In group C. Recurrence was identified in 10 (12.5%) cases. While one case had recurrence (0.125%) in group E. Recurrence rate significantly reduced for those who underwent postoperative hair removal. In contrast hair load have a significant role in the recurrence rate. The mean recurrence time in group C was approximately 4 months (Figs. 7,8).

Table (1)

Variable	Experiential group (n=80)	Control group (n=80)	*p*-value
Age (months)	23.75±1.80	24.15±1.62	0.0028
Sex (male/females)	52/28	53/27	0.524
Duration (months)	17.35±0.86	17.45±0.64	0.328
Bleeding	0.85±0.06	0.11±0.02	0.021
Recurrence	0.125±0.03	12.52±0.85	0.854

Fig. (1): One opening with hair loading at the gluteal region.

Fig. (2): Multiple opening at the middle of the natal cleft.

Fig. (3): Abscess presentation with multiple opening.

Fig. (4): Complete healing with laser hair removal.

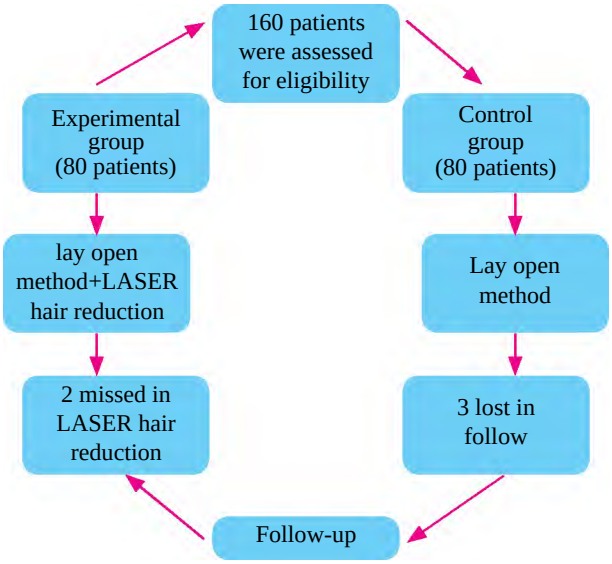

Fig. (5)

Fig. (6): Recurrent case after closed method due to the presence of hair.

Discussion

Our study is concerned and complimented with a limited lay open method, it is a simple procedure as a one day case surgery with local anesthesia in order to avoid general anesthesia and its complications also reduce the cost and the stay in the hospital and reduce exposure to any infectious disease, In the experimental group I, 5 patients missed the completion of laser hair reduction and many hair piercing the midline scar in a trial of recurrence, one patient had minimal bleeding. In group I the follow-up was easier as there in no laser sessions and recurrence were 10 cases as the wound was filled with granulation tissues, skin debris and hair. The number of the cases with relatively small as many patient refused local anesthesia and asked for general one. Patients with pilonidal disease suffer considerable morbidity related to disease recurrence. Our results over 1.5 year follow-up demonstrated a recurrence rate of 22.8% in patients treated surgically for pilonidal sinus without laser hair reduction. The surgical technique used in this study was divided into two groups based on the usage of laser hair reduction in the E group. Our analysis finding revealed low recurrence rate with laser hair reduction and increased recurrence rate in the group without laser hair reduction. This finding suggested that a high density of body hair at or around the natal cleft may contribute to PSD recurrence **[12,13].** Our result agrees with these previous results. Here, patients who failed to keep the area hairless after surgery had a higher rate of recurrence. Several studies have suggested that laser hair removal helps to decrease risk of disease recurrence and should be considered as an adjunct therapy to the surgical treatment to minimize the disease recurrence **[14,15].**

Conclusion:

Lay open surgery of pilonidal sinus disease with a limited excision of the sinus as a one day case surgery is safe and can be done easily with laser hair reduction for the sacro-coccegeal area to reduce the recurrence rate.

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نتائج عملية استئصال الجيب الشعرى بطريقة الفتح الكامل تحت التخدير الموضعى مع إزالة الشعر بالليزر

يعد مرض الجيب الشعرى من الأمراض الشائعة لدى الشباب، ويظهر عادة بين سن ١٥ إلى ٣٠ عامًا ويتطلب علاجًا جراحيًا بتقنية الجرح المفتوح بالتزامن مع إزالة الشعر بالليزر لتجنب تكرار المرض و الهدف من هذه الدراسه هو توضيح نجاح الجراحه المفتوحه مع ازاله الشعر بالليزر وانخفاض نسبه رجوع المرض مره اخرى للمريض. الدراسه تضمنت ١٦٠ مريضاً استوفوا المعايير حيث زاروا عيادة الجراحة فى مجمع الجزيرة الطبى بالرياض بالمملكة العربية السعودية على مدى ١٨ شهرًا، من يونيو ٢٠٢٢ إلى نوفمبر ٢٠٢٣، وكان عمرهم بين ١٥ و٣٢ عامًا وتم اجراء الجراحه فى غرفه عمليات صغيره تحت تاثير التخدير الموضعى. العملية هى عباره عن استئصال الجيب الشعرى بالكامل مع وقف النزيف بشكل جيد وتغطيه الجرح بالشاش ثم ضمادات متكررة حتى الشفاء التام مع استئصال الشعر بالليزر فى منطقة العجز العصعصى. أظهرت الدراسة أن طريقة الجراحة المفتوحة تحت التخدير الموضعى مع إزالة الشعر بالليزر ناجحة للغاية في علاج مرض الجيب الشعرى مع انخفاض معدل تكرار المرض.