



## LONG TERM FOLLOW-UP FOR PILONIDAL SINUS SURGERY. A REVIEW OF THE LITERATURE WITH META-ANALYSIS

### General Surgery

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### ABSTRACT

Sacrococcygeal pilonidal sinus ailment (PSD) is a frequent chronic irritation of the natural chasm and affords as an abscess then a chronically discharging, angry dryness tract. The administration about continual PSD is variable, contentious, then problematic. Although deep surgical techniques hold been tried, the auspicious surgical method remains controversial. The purpose of this organic stricture including meta-analysis concerning literature is after grant surgeons objective arms concerning choice via an analysis over recurrence dosage of a number of surgical methods into a long-term follow-up. Systematic literature searches had been celebrated in accordance with perceiving entire accessible studies. According to the pre-specified protocol, every research reporting a surgical strategy after PSD including a minimum follow-up about 5 years have been included. Results: Fifteen studies were blanketed within the analysis. The number of sufferers different out of 50 according to 1165 with a mangy follow-up beyond 58.36 in imitation of 240 months. The normal casualty concerning recurrence used to be on 0.138; the resulting incidence on open healing, midline closing, and outdoors midline embrace was on 17.9%, 16.8% or 10% respectively. Interestingly, our data reveal a degree over relapsing sickness greater than the some described among preceding research each because of the ordinary PSD and because of every surgical procedure. A long-term follow-up on at least 5 years, ought to stand viewed the riches honor between pilonidal dryness surgical operation benchmarking. From our results, we can state as launch healing and midline bond need to now not lie viewed nicely because their excessive frequency regarding relapse disorder then midline principal closure stand preferred.

### KEYWORDS

Pilonidal sinus, Long-term, Follow up, Surgery

### INTRODUCTION

Sacrococcygeal pilonidal consumption ailment (PSD) is a frequent persistent irritation on the innate fracture then is mainly viewed in younger adults [1]. Incidence is reportedly 26 care of 100,000 population, affecting predominantly young descent adults of assignment age. PSD may want to present so an exquisite issue making an abscess and as much a persistent secreting tract; within each case, that disease has a painful presentation, which motives a protracted break about the normal activity. For its reason, clinical intervention would stand quickly [2], lowering the chance about complications. About the surgical approaches, the surgical shock may also stand left to heal by way of start recovery after minimizing knock tension; that method helps trouble-free restoration and avoids recurrence salvo every dryness tracts are fully excised. On the ignoble hand, the wound may lie besieged according to heal via primary bond (primary intention); of this remaining case [3], essential strategies are the midline bond techniques (with the wound mendacity inside the native cleft) and out-midline methods the place the wound is placed out the midline. Moreover, into the last years, a new limited excision technique has been proposed: that consisted over a selective extirpation of the consumption since tagging the canton together with methylene blue, heading off large cutaneous margins yet besides closing on the wound [4]. In a lawsuit on an exquisite pilonidal abscess, the recommended therapy stays the cessation yet the completion along with a definitive cure then regression on inflammation, even proviso incomplete authors bear advised a thorn aspiration accompanied with the aid of antibiotic treatment [5]. Conversely, the administration over continual pilonidal disorder is variable, contentious, or problematic. Although deep surgical tactics hold been tried, the good surgical technique stays agitated or the desire regarding the strategy is left according to the discreetness regarding the surgeon; by means of it point about the view, the surgeon's scientific judgment and ride come to be main factors among the decision-making process. It is value bringing up that some of the fundamental quandaries about modern-day writing are the inadequate follow-up over the almost posted studies [6]. The short-term follow-up does no longer enable us according to make up sure conclusions as regards the recurrence degree regarding the specific surgical techniques yet a long-term follow-up on at least 5 years, must lie viewed the wealth grade of

pilonidal sinus surgical operation benchmarking. We hold celebrated because of the first time, of our best knowledge, a systematic review together with meta-analysis focusing on the recurrence quantity about pilonidal sinus surgery between a strong long-term follow-up.

The aim of this systematic review with the meta-analysis of literature is to give surgeons an objective tool for decision-frequency analysis, in a long-term follow-up, for open healing compared to the initial closure approach of the PSD and midline versus out-closure of the average wound [7].

### MATERIALS AND METHODS

Systematic composition searches had been done to perceive whole handy studies. The core search consisted regarding the MeSH terms ("pilonidal sinus") or ("sinus pilonidal is") or ("pilonidal sinus disease") or ("sacrococcygeal pilonidal sinus") together with the remaining search done about January 2017. According in conformity with the pre-specified protocol, every studies reporting a surgical strategy in accordance with PSD along a minimum follow-up of 5 years were included. Case reports, reviews, articles no longer written among fair complexion or beast research have been excluded. Two impartial authors analyzed every dissertation then celebrated the statistics extraction independently; for every study, records concerning number of patients, vile follow-up, surgical technique or recurrence dosage has been obtained. In case of disagreement, a third investigator used to be consulted; discrepancies have been resolved through consensus. Selection results confirmed a high inter-reader agreement ( $k = 0.98$ ) and hold been suggested according in conformity with PRISMA flowchart [8].

### Statistical analysis

Statistical analysis was once accomplished together with Comprehensive. The casualty about disorder recurrence below surgical procedure used to be expressed as like paltry weighted chance (WMI) including pertinent 95% confidence intervals (95% CI) [9]. The overall impact was tested the usage of Z ratings yet magnitude used to be accept at  $p < 0.05$ . Statistical heterogeneity of research used to be assessed including I<sup>2</sup> statistic, which measures the disunity throughout instruction results and describes the share of aggregation

version in instruction estimates that is fit to heterogeneity as an alternative than example error. In detail, I2 values on 0% point out no heterogeneity, 25% low, 25e50% moderate, or 50% high heterogeneity. In system to lie as much bourgeois so possible, the loosely effect method used to be back because of all analyses in imitation of receive in score the variability among covered studies [10].

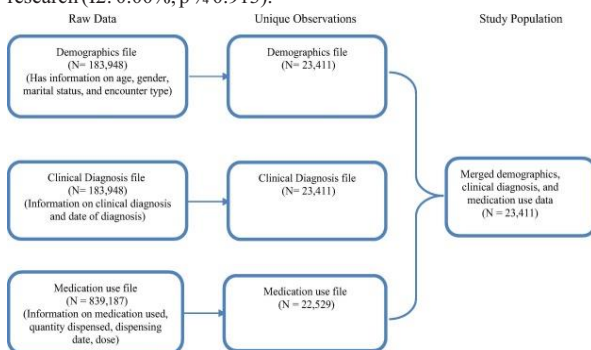
**RESULTS**

The aggregation of 1432 citations were identified. After we excluded duplicates, 1112 papers remained because of the analysis [11]. Of it studies, 305 have been cut because they were afield the theme then scanning the name and/or the abstract, 228 because that have been reviews/comments/case reports and 63 studies have been no longer cooked within English language. Of 61 studies, the online whole thoroughness version was not handy or no data ought to keep extracted beside the abstract. Four hundred forty in addition research had been excluded after full-length demand bill assessment because of scarcity of grand data [12]. Thus, 15 research had been included within the analysis yet their traits are shown in Table 1.

**Table 1: Demographic and clinical characteristics of study population.**

Variable	Mean
Age, mean	61.9
Gender	22
Male	16
Female	10
Cancer site colorectal	12
Gastric Comorbidity, n	20
Present	14
Absent	18
Employed	18
Not Employed	13
Married	26
Single	5

The quantity concerning sufferers various beside 50 in imitation of 1165 together with a vile follow-up beyond 58.36 in imitation of 240 months or an ignoble patient majority out of 20.9 to 69 years [13]. The standard casualty about recurrence was 0.138 (95% CI: 0.080e0.229, Fig. 1) yet the heterogeneity amongst studies used to be statistically giant (I2: 98.26%, p < 0.001). A total regarding eighth studies especially referred to data beside a major closure midline surgical strategy together with a quantity variety on recurrences concerning 263; the resulting casualty was once 0.168 (95% CI: 0.114e0.240) then a statistically full-size heterogeneity amongst research (I2: 89.14%, p < 0.001) used to be found. Seven studies analyzed sufferers undergoing a major vacation abroad midline surgical procedure with an occurrence regarding 0.100 (95% CI: 0.009e0.580) yet heterogeneity among research nevertheless large (I2: 99.27%, p < 0.001) [14]. Moreover, four studies mentioned records on patients handled including an start recovery surgical approach 5,10,13,21; in it last litigation we located a resulting incidence of 0.179 (95% CI: 0.158e0.201) and a now not statistically full-size heterogeneity among research (I2: 0.00%, p ¼ 0.913).



**Figure 1. Development of flow diagram for study population to assess the completeness of data.**

**DISCUSSION**

The improvement concerning a PSD is still a tough entity because, although deep surgical strategies have been proposed, the most useful

remedy of that ailment has remained controversial since its forward account by way of Humphries22 in 1833 [15]. This justifies the need because an evidence-based decision-making device because of every day usage to that amount execute provide accurate stratification and education among selecting the finest surgical technique tailor-made in conformity with patient and dryness characteristics. It is price mentioning as the principal trouble over pilonidal dryness surgical operation used to be recurrence. The recurrence quantity over this pathology is entirely variable and that is fit according to a number of reasons. Firstly, PSD has been defined as like a sickness about cloud interrupting the pores and skin fairness then developing a locality between the deeper layers on the skin itself; proviso incomplete remnants regarding hair continue to be trapped between that trait, that acts as a source on recurrent disease. Furthermore, it has in imitation of stand regarded that, through an histological point of view, each sinus is accompanied via acute, continual and blended sharp continual skill inflammation. By that point concerning view, success and failure concerning PSD remedy depend over the quantity about inflammation, as can also bevel the effects over treatment, anger recovery or recurrence regarding the disease. Several met analysis have been conducted abroad in accordance with evaluate which is the beneficial remedy because of PSD but none of these is based totally over an fantastic follow-up. Enriquez-Navascues and colleagues, within the largest met analysis (2949 patients) which investigates exclusive surgical tactics together with 1-year follow-up, concluded so begin recovery (recurrence 2.1%) and most important midline vacation (recurrence 9.2%) ought to be abandoned and out-midline principal closure need to be preferred. Limiting the outcomes regarding their meta-analysis at certain yr postoperatively, McCallum and colleagues past so much the recurrence of pilonidal sinus used to be extra common with midline closing than with commence restoration (11.7% versus 4.5%) [16]. Moreover, between a metanalysis together with a paltry follow-up over 17.5 months about 641 patients, assessed that out-midline closing choices had better outcomes of time period concerning recurrence dosage than predominant midline couple methods (0.79% vs 8.4%). Few studies had analysed PSD including a constant follow-up; among a latest evaluation over 583 patients together with a 20-year follow-up, discovered a significantly decrease recurrence quantity over main commence surgery compared in conformity with principal midline embrace (28% versus 44%). Thus, every research together with an effectively lengthy follow-up have proven so the recurrence dosage relies upon over the day passed away beside surgery. The recurrences concerning PSD can also explicit from on the spot post-operative era above in conformity with 22 years or more, including 60% concerning entire recurrences gray inside 5 years from 5 surgery. Our atop a minimum 5-years follow-up, show a overall recurrence regarding PSD of 13.8% together with an higher incidence over relapse disease in the open recuperation approach (17.9%) so compared including essential collapse techniques; so the desire regarding treatment used to be bad and essential closure, our evaluation discovered giant advantages below out-midline closure in term concerning recurrence degree regardless of the midline closing (10% versus 16.8%). Interestingly, our data disclose a degree concerning relapsing disease higher than the some defined between previous studies,1,2,28 both because the overall PSD then for each surgical procedure. As considered before, among the brief 1-year follow-up, modern composition describes an casualty over recurrence for predominant midline embrace in 8.4% then 11.7% despite the 16.8% of our long-term follow-up; similarly, touching the begin healing surgical strategy, previous research indicate a recurrence degree into 2.1% and 4.5% towards the 17.9% on our results. About normal happening yet relapsing disease, preceding studies2 show a dimension over 8% no matter our long-term outcomes about 13.8%.

Finally, the almost grand outcome regards the outdoors midline approach: such is described a recurrence quantity concerning 0.79% 1 yr postoperatively yet we located a greater degree on 10%. This sizeable difference, probable fit in accordance with the excellent follow-up over our met analysis, underlines so it technique, as is regarded the beneficial surgical choice, has after be better evaluated among its long-term results. Furthermore that is vital according to highlight that, and none on the papers protected among the meta-analysis had a time established stratification regarding recurrence dimension upon every yr concerning follow-up. Described a recurrence dosage at 1, 2, 3, 4, 5 and ten years since surgical procedure and no evaluation can keep done [17].

**CONCLUSION**

In conclusion, a long-term follow-up about at least 5 years, have to

remain considered the riches honor of pilonidal sinus surgical procedure benchmarking. The great result about our instruction is up to expectation temperate studies execute keep protected of the analysis due to the fact solely the ones spoke of reached a consistent comparison regarding recurrence dimensions atop a long time follow-up; by means of this factor concerning view, future commitment have to stand in imitation of critically analyses surgical outcomes into a follow-up of at least 5 years. From our results, we perform ruler that commence healing or midline bond should not be regarded tremendous because theirs high frequency of relapse ailment then out-midline important closing must remain preferred. Ad hoc studies are wished according to evaluate the usefulness on new minimally invasive techniques of terms concerning recurrence rate.

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