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Abstract

Purpose: Pilonidal sinus incidence is increasing in surgical departments all over the world. Pilonidal sinus is under the influence of several factors. These factors are studied well in various parts of the world; however, these factors are understudied in Pakistan. This study aimed to find out the risk factors of pilonidal sinus among the patients diagnosed with pilonidal sinus.

Methodology: This descriptive cross-sectional study was conducted among one hundred and eight patients with pilonidal sinus at Benazir Bhutto Hospital Rawalpindi, for one year from January 2021 to January 2022. Ethical approval and informed consent were obtained before the start of study. Patients' enrollment was done according to a developed inclusion and exclusion criteria. Convenient sampling technique was also applied for recruitment of participants. Data was collected through a self-designed questionnaire. Descriptive statistics were utilized for the data analysis. Data analysis was performed by SPSS version 25.0 (IBM Corp., Armonk, NY).

Findings: Pilonidal sinus frequency was high among the patients who had age group of 11 to 30 years (68.52%), male gender (62.96%), driving profession (37.96%), family history of pilonidal sinus (64.82%), high body mass index(60.18%), daily sitting for more than 6 hours (79.62%), sitting on hard surfaces (63.88%), hairy skin (55.55%), excessive sweating (68.52%), poor hygiene of sacrococcygeal region (77.78%), number of baths less than three times per week (61.11%), and light colored skin (62.04%).

Recommendations: This study recommends that health authorities should make people educated regarding the risk factors that lead to pilonidal sinus. The study also recommends that people should reduce their body weight, sit over soft places and should avoid continuous sitting for long periods. People should take care of hygiene, especially of sacrococcygeal regions by shaving hair, drying moisture, and taking frequent baths.

Keywords: *Risk, factors, pilonidal, sinus, tertiary, care, hospital, Rawalpindi*

INTRODUCTION

Pilonidal sinus (PNS) is a common surgical problem. PNS is a chronic inflammatory disease of the skin, which is characterized by a cyst that contains hair bundles and pus, along with sinus formation with opening on the skin surface. The hallmark of the PNS is skin penetration by the hair [1,2]. PNS presentation differs in different patients as some patients can be asymptomatic, while other patients can present with painless sinuses to painful abscesses. Daily activities of patients of PNS are greatly affected as discharge from painful sinus and bad odor make daily activities difficult [2,3]. PNS is common among the population with age range of 11 to 40 years and almost fifty percent of the perianal region diseases are PNS [4].

The common sites for the PNS are sacrococcygeal region/intergluteal cleft, other sites where PNS is comparatively less common are interdigital webs, umbilicus, nose, axilla, occiput, groin, clitoris, penis, and suprapubic area [4,5]. Surgery is the main treatment modality for PNS. Different surgical methods are used for PNS treatment such as cryosurgery, shaving, incision, and drainage, excision with primary closure, with marsupialization, or with open packing, and flaps surgery [2,3,6]. These therapeutic methods always put a financial burden on the patients of PNS and their families. Therefore, we should find preventive techniques for PNS as this preventive approach would be cost effective for sure not only for patients but also for health deficient care systems of poor countries. Prevention of PNS is only possible by the identification of the risk factors for PNS and then by working on the strategies that could decrease or eliminate the risk factors of PNS. Therefore, this study aims to recognize the risk factors for pilonidal sinus among the diagnosed patients of pilonidal sinus in surgery department of the Benazir Bhutto, Hospital, Rawalpindi.

MATERIAL AND METHODS

This descriptive cross-sectional study was carried out in the surgery department of Benazir Bhutto Hospital, Rawalpindi, among one hundred and eight patients with pilonidal sinus for one year from January 2021 to January 2022. Patients' recruitment in the study was done by using non-probability convenient sampling and developed inclusion and exclusion criteria. Only those patients who had, an age range between 11 to 60 years, diagnosed with pilonidal sinus, and will to participate, were enrolled in the study, whereas, those who had, age below 11 years or above 60 years, only suspicion of pilonidal sinus, and hesitation in the participation, were excluded from the study. Before the start of the study ethical approval was taken from Ethical Review Board of the Benazir Bhutto Hospital, Rawalpindi. Ethical Review Board no. BBH.ERB.283/205. Informed consent was also waived from all participants before the data collection.

Data was collected via a self-designed questionnaire. This questionnaire had two parts. First was about socio-demographic characteristics of the study population such as gender (male or female), age group (11 to 30 years, 31 to 45 years, or 46 to 60 years), and occupations (students, driving, office work, and other professions) whereas, the second part was regarding the other potential risk factors of pilonidal sinus which included family history (yes or no), body mass index (less than 25 or more than 25), sitting time daily (less than six hours or more than six hours), places for sitting (soft or hard), hairy skin (yes or no), sweating (normal or excessive), sacrococcygeal hygiene (good or poor), number of baths per week (five or above or less than three times), and skin color (light color or dark color), among participants. Body mass index (BMI) was calculated through the following formula (weight in kilograms/square of height in meters)

After data collection, data analysis was performed through descriptive statistics in statistical Package for the Social Sciences (SPSS) version 25 (Armonk, NY: IBM Corp.). The frequency and percentage of qualitative data were measured, while means of quantitative data were calculated.

RESULTS

Out of one hundred and eight patients, sixty-eight (62.96%) were males, while forty (37.04%) were females. The means of age and BMI for the study population were 35± 19.89 and 28.65±8.19 respectively. Table 1 shows that the frequency of pilonidal sinus was higher among the patients with an age range of 11-30 years, male gender, and driving profession in contrast to the patients with a higher age range such as 31-45 or 46-60years, female gender, and other professions respectively.

Table 2 elaborates that pilonidal sinus frequency was higher among the patients who had a family history of pilonidal sinus, BMI more than 25 kg/m^2, sitting time per day more than six hours, sitting over hard places, hairy skin, excessive sweating, poor sacrococcygeal hygiene, less than three number of baths per week, and light-colored skin as compared to patients with no family history of pilonidal sinus, BMI less than 25 kg/m^2, sitting time per day less than six hours, sitting over soft places, non-hairy skin, normal sweating, good sacrococcygeal hygiene, five or above the number of baths per week, and dark colored skin respectively.

Table 1: Socio-demographic attributes of study population

Variables	Frequency	Percentage
Age group in years		
11-30	74	68.52%
31-45	21	19.44%
46-60	13	12.04%
Gender		
Male	68	62.96%
Female	40	37.04%
Occupation		
Students	30	27.78%
Drivers	41	37.96%
Office Work	29	26.85%
Other Professions	8	7.41%

Table 2: Frequencies and percentages of potential risk factors of the Pilonidal sinus among study population

Variables	Frequency	Percentage
Family History of Pilonidal Sinus		
Yes	70	64.82%
No	38	35.18%
Body Mass Index		
Less than 25	43	39.82%
Above 25	65	60.18%
Sitting Time per Day in Hours		
less than 6	22	20.38%
More than 6	86	79.62%
Place for Sitting		
Soft	39	36.12%
Hard	69	63.88%
Hairy Skin		
Yes	60	55.55%
No	48	44.45%
Sweating		
Normal	34	31.48%
Excessive	74	68.52%
Sacrococcygeal Hygiene		
Good	24	22.22%
Poor	84	77.78%
Number of Baths per Week		
Less than 3	66	61.11%
5 or above	42	38.89%
Skin Color		
Light	67	62.04%
Dark	41	37.96%

DISCUSSION

This study has highlighted the risk factors of a very common surgical problem in the perianal region. In the first stage of the data analysis, the role of socio-demographic elements in the development of the pilonidal sinus was assessed. It was noted that pilonidal sinus was more prevalent among patients with the age range of 11-30 years. Another study that was conducted in Iran showed a high prevalence of PNS in the almost same age group as in the present study [7]. The higher incidence of the PNS in the male gender in the current study was also backed by another study that was carried out in Iraq [2]. Occupation also impacts the incidence of the PNS, this study reported the highest incidence of PNS among drivers, followed by students. This finding regarding the influence of the profession on the PNS was also consistent with another study that was conducted in Germany [8].

In the second stage of the data analysis, frequencies and percentages of other possible risk factors were described among the patients with PNS. It was observed that a family history of PNS, predisposes people towards the development of the PNS. Similar results about the effect of family history of PNS were also observed in the study of Turkey [1]. This study also suggested that a high BMI increases the chances of PNS formation. High BMI makes intergluteal cleft deep, which leads to more moisture and hence, more chances of the development of PNS. This role of BMI in the formation of PNS was also described by a study of Iraq [4]. This study also manifested that sitting for more than six hours and sitting over hard places, significantly raise the frequency of PNS. This finding of the current study was also endorsed by some other studies in literature [2,7]. PNS incidence was high among the patients with hairy skin in this study. Similar results about the impact of hairy skin on PNS were narrated in another study [9]. Excessive sweating was also found to increase the PNS frequency, and this was also reported in the results of one other study [8]. Good hygiene of the sacrococcygeal region and other hairy areas and taking frequent baths per week were found protective against the formation of the PNS. Several studies in the literature that were performed in different areas of the world also suggested that good hygiene by shaving hairy areas and taking frequent baths could prevent PNS [2,8,9]. Light-skinned color people were more predisposed to PNS. This finding of the current study was also documented in another Turkish study [1].

Although this study has given valuable information regarding the risk factors of PNS among the patients in the surgery ward of Benazir Bhutto Hospital, Rawalpindi, this study has some restrictions as well. These restrictions include study design which is cross-sectional and genetic analysis of patients. Because of the cross-sectional design this study could not narrate how the above-mentioned risk factors lead to pilonidal sinus formation. Therefore, further research is needed to describe how these risk factors could cause pilonidal sinus development.

CONCLUSION AND RECOMMENDATIONS

This study findings have proposed that pilonidal sinus develops more commonly among patients with age group of 11-30 years, male gender, and driving as occupation. The main risk factors linked with the formation of pilonidal sinus are a family history of pilonidal sinus, high body mass index, sitting more than six hours, sitting over hard places, hairy skin, excessive sweating, poor sacrococcygeal hygiene, fewer number of baths per week, and light-colored skin.

Health authorities should make people educated regarding the risk factors that lead to pilonidal sinus. Health departments could raise people's knowledge level about risk factors for pilonidal sinus and its linked complications via public service advertisements, health awareness workshops, and multimedia. By enhancing the knowledge level of the people regarding the risk factors of PNS and protective actions against them, the pilonidal sinus frequency could be reduced, which would bring betterment in the standard of life of people that could predispose to pilonidal sinus. Moreover, it would also bring down the incidence of pilonidal sinus-linked complications and would help third-world countries and their healthcare system that has limited resources. This study recommends that people should reduce their body weight. People should sit over soft places and should avoid continuous sitting for long periods. People should take care of hygiene, especially of sacrococcygeal regions by shaving hair, drying moisture, and taking frequent baths. These strategies could lead to a reduction in pilonidal sinus incidence.

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