ORIGINAL ARTICLE

Prevalence of Fordyce's Granules among Adult Dental Patients Attending a Provincial Hospital in Janakpurdham, Nepal: A Descriptive Cross-Sectional Study

Raju Kumar Chaudhary[1], Mina Jha[1], Rajib Chaulagain[2]

[1] Department of Anatomy, Madhesh Institute of Health Sciences, Janakpurdham, Nepal
[2] Department of Dentistry, Madhesh Institute of Health Sciences, Janakpurdham, Nepal

Corresponding Author:
Mr. Raju Kumar Chaudhary
Department of Anatomy
Madhesh Institute of Health Sciences,
Janakpurdham, Nepal.
Email: rajuanatomist@gmail.com

Article History:
Received date: January 12, 2026
Revised date: January 23, 2026
Accepted date: January 29, 2026
Published date: February 14, 2026

Online Access
DOI: 10.64772/mjapfn48

Abstract

Introduction: Fordyce's granules are ectopic sebaceous glands that are usually localized in the oral mucosa. They appear in the oral cavity as an elevation and are detected in routine dental examination. There is a paucity of data related to Fordyce's granules in the Nepalese population. This study aimed to study the prevalence of Fordyce's granules in the oral cavity of adult dental patients attending a provincial hospital in Janakpurdham, Nepal.

Methods: A descriptive cross-sectional study was conducted among 279 dental patients visiting the Provincial hospital, Janakpurdham, Nepal. Ethical approval to conduct the study was obtained from the Institutional Review Committee of Madhesh Institute of Health Sciences (MIHS-IRC/082/083-22). The participants' oral cavities were examined using a mouth mirror under adequate illumination. The findings were recorded in the proforma, which was later analyzed using descriptive statistical methods with Statistical Package for the Social Sciences version 16.

Results: A total of 279 adults with a mean age of 36.14 ± 9.72 years participated in the study. Among the participants, 155 (55.56%) were male. The prevalence of Fordyce's granules was 104 (37.28%). The highest prevalence of Fordyce's granules was observed in the 20–29-year age group, 34 (32.70%). The majority of the Fordyce's granules were observed in the retromolar area on the right side, 87 (16.89%), followed by the right buccal mucosa, 73 (14.17%).

Conclusions: The findings confirm that Fordyce's granules are a common finding in this population, with a prevalence of 37.28%. They were most common in young adults and were primarily located in the retromolar area and the buccal mucosa.

Keywords: *fordyce's granules; oral mucosa; sebaceous glands.*

Introduction

Fordyce's granules or spots are tiny, elevated, light, red, yellow, or flesh-colored lumps or spots that frequently develop on the skin and oral mucosa.[1] These granules are known as ectopic sebaceous glands, mostly observed unilaterally or bilaterally on the lips, cheeks and in the genitalia.[2,3]

Regarding the frequency of Fordyce's granules, there is significant disagreement. Although the reported

How to cite (Vancouver Style)
Chaudhary RK, Jha M, Chaulagain R. Prevalence of Fordyce's Granules among Adult Dental Patients Attending a Provincial Hospital in Janakpurdham, Nepal: A Descriptive Cross-Sectional Study. Med J APF Nepal. 2026;2(1):74-78.

prevalence of oral Fordyce's spots varies considerably across populations, the discovery of substantial or numerous granules within an individual is an infrequent clinical finding. These ectopic sebaceous glands are rarely observed in pediatric populations, typically becoming clinically apparent in later adulthood, with a noted predilection for male individuals.[4,5] It has been proposed that Fordyce's granules have a genetic component. Studies have also proposed that the granules have an idiopathic etiology with no known medical significance.[1]

Although Fordyce's granules are generally considered a benign and easily identifiable condition, their extensive presentation within the oral cavity can be a source of significant concern and anxiety for affected individuals. Despite being a common anatomical variant, epidemiological data specifically documenting the prevalence and characteristics of Fordyce's granules within the Nepalese population remain notably scarce. To address this gap in the literature, the present study was conducted with the objective of assessing the magnitude and clinical profile of Fordyce's granules among adult dental patients attending a provincial hospital in Janakpurdham, Nepal.

Methods

This descriptive cross-sectional study was conducted among adult dental patients of age 18-60 years, attending a provincial hospital in Janakpurdham, Nepal, from September 2025 to November 2025. The ethical approval for conducting the study was obtained from the Institutional Review Committee of Madhesh Institute of Health Sciences (MIHS-IRC/082/083-22). The participants included in this study were individuals between the ages of 18 and 60, encompassing both males and females, who provided voluntary informed consent. To ensure the clarity and specificity of the clinical examination, the following exclusion criteria were applied: patients who were uncooperative or unable to comply with the examination procedure, those presenting with any active infection affecting the facial or buccal regions, and individuals with a documented history of significant trauma or previous surgical intervention in the orofacial area.

Based on the study of Shahzad et al., taking p= 57%,6 q = 1-p, Z= degree of confidence level, which is taken as 95%, e (allowable error) = 0.06 and using the formula

$n= (Z^2 \times p \times q) / e^2$

the sample size was calculated as 261.44. The final sample size was 279 in this study.

The complete nature, purpose, and procedures of the investigation were comprehensively explained to each participant in a language they could fully understand. Following this detailed disclosure, written informed consent was formally obtained. Data collection was systematically conducted using a specifically designed, structured pro forma. The initial component of this proforma was dedicated to capturing detailed demographic and clinical histories from each participant. Subsequently, a meticulous clinical examination of the oral cavity was performed by a single, calibrated investigator to ensure diagnostic consistency. This examination was conducted under optimal artificial illumination using a standard, sterile plane mouth mirror. A systematic visual inspection protocol was followed, progressing sequentially from the upper labial mucosa and vermilion border to the lower labial mucosa and vermilion border, the right and left buccal mucosa, the gingiva, the soft palate, and finally, the bilateral retro-molar areas. All clinical findings were then contemporaneously and accurately documented in the designated section of the study proforma. The data obtained were entered into a Microsoft Excel spreadsheet and later transferred to Statistical Package for the Social Sciences version 16. The data was analyzed using descriptive statistics (measures of central tendency and measures of dispersion).

Results

A total of 279 adults participated in the study, with a mean age of 36.14 ± 9.72 years. The majority of participants, 155(55.56) , were male (Table 1).

Table 1: Demographic characteristics of participants

Characteristics of participants		Frequency (%)
Age (Years) (Mean ± SD)		36.14 ± 9.72
Gender	Male	155(55.56)
	Female	124(44.44)

The overall prevalence of Fordyce's granules among participants was 104 (37.28%). Among the 104 participants with Fordyce's granules, 71 (68.27%) were male, and 33 (31.73%) were female (Table 2).

Table 2: Gender wise distribution of Fordyce's granules in the oral cavity

Gender wise distribution of Fordyce's granules	Present n(%)	Absent n(%)
Male	71(68.27)	84(48)
Female	33(31.73)	91(52)
Total	104(100)	175(100)

Age-wise distribution (Table 3) revealed the highest

prevalence in the 20-29 years age group, 34 (32.70%), followed by the 40-49 years group, 30 (28.81%). The distribution of granules within the oral cavity is detailed in Table 4. The most frequent site was the right retromolar area 87 (16.90%), followed by the right buccal mucosa 73 (14.20%) and the upper vermilion border 70 (13.60%).

Table 3: Distribution of Fordyce's granules on different age groups

Age groups	Present n(%)	Absent n(%)
20-29	34(32.70)	84 (48)
30-39	25(24.09)	25(14.28)
40-49	30(28.81)	47(26.85)
50-59	15(14.40)	19(10.87)
Total	104(100%)	175(100%)

Table 4: Frequencies of Fordyce's granules in the oral cavity*

Location	Present n (%)
Upper lip	16(3.11)
Lower lip	15(2.91)
Right retromolar area	87(16.89)
Left retromolar area	64(12.43)
Right buccal mucosa	73(14.17)
Left buccal mucosa	43(8.35)
Right side of soft palate	28(5.44)
Left side of soft palate	20(3.88)
Gingiva on the right	23(4.47)
Gingiva on the left side	20(3.88)
Upper vermilion border	70(13.59)
Lower vermilion border	56(10.87)

* Multiple sites and overlapping categories

Discussion

The present study assessed the prevalence of Fordyce's granules in the oral cavity among the adult population of Janakpurdham and provided the distribution of Fordyce's granules in the oral cavity. The overall prevalence of the Fordyce's granules was 104 (37.28%) in the present study. Similar to many other studies,[6-10], the findings of the study also indicate that Fordyce's granules could be commonly observed in the Nepalese population. However, there are variations in the prevalence rate among many studies. In the study conducted in Karachi, the prevalence was 50.97%, which was higher than in the present study.[6] In another study conducted in Saudi Arabia, the prevalence was 51.70%.[8] A study conducted in Israeli Jews demonstrated the prevalence of 94.90%.[5] This was also not in accordance with the observed findings of this study. The variations in prevalence from one study to another can often be explained by several underlying factors. These include differences in study design, the selection of age groups included in the research, the diagnostic criteria applied when identifying cases, and the unique demographic traits of the studied population. Studies suggest variation in the presence of Fordyce's granules across gender, age groups and location in the oral cavity.[5,6,8,11,12] Among the study participants, the prevalence of Fordyce's granules was observed more in males 71 (68.27%) than in females. In agreement with the present finding, studies have also shown male predominance.[5,11,13] A higher prevalence of Fordyce's granules 34 (32.70%) was observed among the age group 20-29 years and the least 15 (14.40%) in the age group 50-59 years. The present finding is in agreement with existing literature, which suggests that Fordyce granules become apparent after puberty.[6,8,13] The Literature also suggests this may be due to hormonal changes in the sebaceous gland during puberty.[14,15]

Studies have revealed nuanced distribution patterns of Fordyce's granules in the oral cavity.[5,6,11] In relation to the location of the oral cavity, Fordyce's granules were observed in the retromolar area on the right side 87 (16.89%) followed by right buccal mucosa 73 (14.17%), upper vermilion border 70 (13.59%) in the current study. It was observed less in the upper and lower lips. The findings are consistent with inter-study variation in the distribution of Fordyce's granules. Sherwani et al. in their study reported Fordyce's granules to be prevalent in buccal mucosa (61%), followed by lips, retromolar area, and gingiva.[11] Another study conducted in Karachi, Pakistan, reported the presence of Fordyce's granules in buccal mucosa (61%) followed by the upper lip (20%).[6] While in the study of Gorsky et al. the upper vermilion border was the major area to show Fordyce's granules (41.90%).[5]

Fordyce's granules are considered a normal anatomical variant rather than a pathological condition.[2,16-18] Due to their visible intraoral manifestation, Fordyce's granules can be a significant source of patient concern. This anxiety frequently stems from misidentification as a pathological condition, which may subsequently lead affected individuals to seek out ineffective or potentially harmful interventions.[17] It is the responsibility of dental professionals to emphasize, educate and make the patient and local citizens aware of the nature of the condition.

This study is subject to certain inherent limitations that should be considered when interpreting its findings. Primarily, the cross-sectional design

provides a snapshot of prevalence at a single point in time and cannot establish causal relationships or temporal trends. Furthermore, the sample was drawn from a single hospital setting, which may not be fully representative of the broader Nepalese population. Consequently, the external validity of the results is constrained, limiting the generalizability of the findings to the entire country. To address these constraints and enhance the robustness of epidemiological data on Fordyce's granules in Nepal, future research would benefit from a larger, multi-center study design. A larger, multi-center study would provide more robust national estimates and the statistical power needed to properly investigate links with factors like age, gender, skin type, and lipid profile.

Conclusions

In conclusion, Fordyce's granules are a common, site-specific anatomical variant in the oral cavity. They are most prevalent among young adults and demonstrate a distinct predilection for the retromolar area, followed by the right buccal mucosa.

Source of Funding: MIHS-16

Acknowledgment: None

Conflict of Interest: None

Authors' Contribution and ORCID iDs

Mr. Raju Kumar Chaudhary: Conceptualization, Methodology, Manuscript preparation, Data Collection, Review and Editing.

: https://orcid.org/0000-0002-7636-3356

Dr. Mina Jha: Conceptualization, Manuscript preparation

: https://orcid.org/0000-0003-4272-9134

Dr. Rajib Chaulagain: Conceptualization, Manuscript preparation

: https://orcid.org/0000-0003-1571-3065

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Bios

Mr. Raju Kumar Chaudhary is an Assistant Professor at the Department of Anatomy at Madhesh Institute of Health Sciences. He was previously working at Birat Medical College, Biratnagar. He has a keen interest in teaching learning activities and research.

Email: rajuanatomist@gmail.com

Dr Mina Jha is an Associate Professor at the Department of Anatomy at Madhesh Institute of Health Sciences. Before joining MIHS, she was working in Janaki Medical College and Hospital. Dr Jha has an interest in Medical Education and research.

Email: drminajha@gmail.com

Dr Rajib Chaulagain is an Associate Professor in the Department of Dentistry at MIHS. He is also associated with health research at MIHS. He is an Oral anatomist and Oral biologist. He has keen interest in temporomandibular disorders, metabolomics and medical education too.

Email: drrajibchaulagain@gmail.com