

# Fordyce Spots

Alexander K. C. Leung<sup>1\*</sup> and Benjamin Barankin<sup>2</sup>

<sup>1</sup>Clinical Professor of Pediatrics, University of Calgary, Pediatric Consultant, Alberta Children's Hospital, Canada

<sup>2</sup>Dermatologist, Medical Director and Founder, Toronto Dermatology Centre, Canada

## Abstract

Fordyce spots, also known as Fordyce glands, are enlarged sebaceous glands. They lack an association with hair follicles and have ducts opening directly onto the cutaneous surface. Although these sebaceous glands are present at birth, they are not obvious until puberty when they enlarge in response to the gonadal and adrenal androgenic hormones. The prevalence in adults is 70 to 80%. The male to female ratio is approximately 2:1. Clinically, Fordyce spots appear as asymptomatic, isolated or scattered, minute, creamy yellow, discrete papules. They occur most commonly and most conspicuously on the vermilion lips and oral mucosa and, less commonly, on the penis, scrotum, and labia. The lesions are usually bilateral and symmetrical. Treatment is usually not necessary apart from reassurance about the benign nature of the condition. Various destructive modalities have been employed by dermatologists with some success.

## Introduction

In 1896, Fordyce described the occurrence of whitish spots on the oral mucosa and vermilion border of lips; the condition now bears his name [1]. Subsequent to that, manifestations of these spots on other anatomic body parts have been described.

## Epidemiology

The incidence of Fordyce spots, also known as Fordyce glands, increases with age, being more common in adults than in children [2]. The prevalence in adults is 70 to 80% [3]. The male to female ratio is approximately 2:1 [4].

## Pathogenesis

Fordyce spots are enlarged sebaceous glands that can occur on various body parts such as the lips, oral mucosa, penis, and, labia. Some authors suggest that Fordyce spots are ectopic/heterotopic sebaceous glands [2,4]. Other authors suggest that the lesions are not necessarily ectopic/heterotopic as it is not uncommon to have subtle or invisible sebaceous glands on the lips [5,6]. In one study, normal sebaceous glands were present on the vermilion border of the lips in 80 to 95% of adults [5].

Fordyce spots lack an association with hair follicles and have ducts opening directly onto the cutaneous surface [4,6,7]. Although these sebaceous glands are present at birth, they are not obvious until puberty when they enlarge in response to gonadal and adrenal androgenic hormones [3,7,8]. Enlargement of sebaceous glands renders them visible throughout the overlying epithelium [5].

## Histopathology

Histological examination of the lesions show enlarged cutaneous sebaceous glands, consisting of a group of mature sebaceous lobes surrounding small ducts that emerge at the epithelial surface [8]. These sebaceous glands lack an association with a hair follicle [3]. Pathological alterations are rare [4].

## Clinical manifestations

Clinically, Fordyce spots appear as asymptomatic, isolated or grouped, minute (pinhead-sized), creamy yellow, discrete papules [6]. Occasionally, the papules are lobulated or form plaques [2,3]. They occur most commonly and most conspicuously on the vermilion border of the lips (Figure 1) and oral mucosa and, less commonly, on the penis, scrotum (Figure 2), and labia [6]. The lesions are usually bilateral and symmetrical [4,7]. On the penile shaft, these papules are



Figure 1. Fordyce spots on the upper lip.

**Correspondence to:** Alexander K.C. Leung, Clinical Professor of Pediatrics, University of Calgary, Pediatric Consultant, Alberta Children's Hospital, #200, 233-16th Avenue NW, Calgary, Alberta, Canada T2M 0H5, Tel: (403) 230-3322, E-mail: aleung@ucalgary.ca

**Key words:** fordyce spots, fordyce granules, sebaceous glands, lips, oral mucosa, genitalia

**Received:** May 13, 2015; **Accepted:** June 20, 2015; **Published:** June 24, 2015



**Figure 2.** Fordyce spots on the scrotum.

more obvious when the foreskin is stretched or during penile erection [9]. A thick, chalky or cheesy material can sometimes be expressed by squeezing the lesion [9].

### Diagnosis

The diagnosis is mainly clinical. No investigation is necessary. If diagnosis or treatment is uncertain, referral to a dermatologist should be considered.

### Differential diagnosis

Fordyce spots should be differentiated from milia and sebaceous hyperplasia. Milia are small, white, benign, dome-shaped, superficial keratinous cysts. Histologically, they appear as small infundibular cysts that are lined with stratified squamous epithelium with a granular cell layer. The cyst contains laminated layers of keratin. Primary milia may be congenital (congenital primary milia) or have onset later on in life (benign primary milia of children and adults). Congenital primary milia are present in approximately 40% of newborn infants with no sex predilection. While congenital primary milia favor the nose, benign primary milia of children and adults favor the eyelids. Secondary milia may occur in association with disease, medication, or trauma. Milia often exfoliate and resolve spontaneously. Clinically, sebaceous hyperplasia more commonly present as multiple, asymptomatic, discrete, yellow or flesh-colored, dome-shaped papules. Some of the lesions will have central umbilication. Individual lesions are usually 2 to 5 mm in diameter but may be larger in size. The face, in particular the forehead, cheeks, and nose, is most commonly affected. The condition is seen mainly in middle-aged and elderly individuals. Other

differential diagnoses include syringomas, molluscum contagiosum, lichen nitidus, closed comedones, cutaneous myxomas, and calcinosis cutis.

### Complications

Fordyce spots can be cosmetically unsightly. Rarely, penile lesions may cause discomfort during sexual intercourse [10]. Usually, they are of no clinical significance and are not associated with systemic disease. A recent study showed that individuals with elevated lipid profile tend to have higher numbers of oral Fordyce spots [11]. Further studies are necessary to confirm or refute this finding.

### Treatment

Treatment is usually not necessary apart from reassurance about the benign nature of the condition [3,9]. For those patients in whom treatment is desired mainly for esthetic reasons, treatment options include micro-punch surgery, electrodesiccation, cryotherapy, ablative laser, photodynamic therapy, topical bichloroacetic acid, topical tretinoin, and oral isotretinoin; typically dermatologists provide the treatments where requested [2-4,6,10].

### References

1. Fordyce JA (1896) A peculiar affection of the mucous membrane of the lips and oral cavity. *J Cutan Dis* 14: 413-419.
2. Chern PL, Arpey CJ (2008) Fordyce spots of the lip responding to electrodesiccation and curettage. *Dermatol Surg* 34: 960-962. [[Crossref](#)]
3. Plotner AN, Brodell RT (2008) Treatment of Fordyce spots with bichloroacetic acid. *Dermatol Surg* 34: 397-399. [[Crossref](#)]
4. Baeder FM, Pelino JE, de Almeida ER, Duarte DA, Santos MT (2010) High-power diode laser use on Fordyce granule excision: a case report. *J Cosmet Dermatol* 9: 321-324. [[Crossref](#)]
5. Elston DM, Meffert J (2001) Photo quiz. What is your diagnosis? Fordyce spots. *Cutis* 68: 24, 49. [[Crossref](#)]
6. Mutizwa MM, Berk DR (2014) Dichotomous long-term response to isotretinoin in two patients with fordyce spots. *Pediatr Dermatol* 31: 73-75. [[Crossref](#)]
7. Mansur AT, Aydingoz IE (2012) Unilateral buccal fordyce spots with ipsilateral facial paralysis: a sign of neuro-sebaceous connection? *Acta Derm Venereol* 92: 177-178. [[Crossref](#)]
8. Ocampo-Candiani J, Villarreal-Rodríguez A, Quiñones-Fernández AG, Herz-Ruelas ME, Ruiz-Esparza J (2003) Treatment of Fordyce spots with CO2 laser. *Dermatol Surg* 29: 869-871. [[Crossref](#)]
9. Rane V, Read T (2013) Penile appearance, lumps and bumps. *Aust Fam Physician* 42: 270-274. [[Crossref](#)]
10. Pallua N, Stromps JP (2013) Micro-punch technique for treatment of Fordyce spots: a surgical approach for an unpleasant condition of the male genital. *J Plast Reconstr Aesthet Surg* 66: e8-11. [[Crossref](#)]
11. Gaballah KY, Rahimi I (2014) Can presence of oral Fordyce's granules serve as a marker for hyperlipidemia? *Dent Res J (Isfahan)* 11: 553-558. [[Crossref](#)]