Introduction

Pilonidal disease is described back as far as 1833, when Mayo described a hair-containing cyst located just above the coccyx. Hodge coined the term "pilonidal" from its Latin origins in 1880, and, today, pilonidal disease describes a spectrum of clinical presentations, ranging from asymptomatic hair-containing cysts and sinuses to large symptomatic abscesses of the sacrococcygeal region that have some tendency to recur.**(Hull & Wu: 2002)**

Incidence of pilonidal disease is about 26 per 100,000 populations. Pilonidal disease occurs predominantly in males, at a ratio of about 3-4:1. It occurs predominantly in white patients, typically in the late teens to early twenties, decreasing after age 25 and rarely occurs after age 45. **(Hull & Wu: 2002)**

Pilonidal disease affects approximately 26 per 100,000 people. In England in 2000-2001, a total of 11,534 admissions were recorded for pilonidal disease. The mean hospital stay was 4.3 days. Pilonidal disease in the general population has a male preponderance. It occurs in the ratio of 3 or 4:1. In children, however, the ratio is the opposite occurring in 4 females for each male it afflicts.

Pilonidal disease commonly affects adults in the second to third decade of life. Pilonidal cysts are extremely uncommon after age 40 years, and the incidence usually decreases by age 25 years. The average age of presentation is 21 years for men and 19 years for women. There is no known preponderance of this disease in smokers or alcohol or drug abusers. **(da Silva: 2000)**

In the 19th and early 20th centuries, pilonidal disease was studied on an embryologic basis by many authors who considered it to be of congenital origin. Excision of the lesion was thought to be fundamental to removing all embryologic remnants. Other authors have followed this emphasis of hair as disease origin, and, in fact, an acquired etiology of the disease is now the prevailing theory in the medical world. **(da Silva: 2000)**

One publication listed local irritation to the SC site, positive family history of pilonidal disease (PD), sedentary life style, and obesity as occurring in notable percentages of patients with PD (all factors between 34-50% occurrence in PD**). (Miller & Harding: 2003)**

It has been postulated that hair penetrates into the subcutaneous tissues through dilated hair follicles, which is thought to occur particularly in late adolescence, though follicles are not found in the walls of cysts. A sinus

develops with a short tract, with a not clearly understood suction mechanism involving local anatomy, eventually leading to further penetration of the hair into the subcutaneous tissue. A foreign body-type reaction may then lead to formation of an abscess. If given the opportunity to drain spontaneously, this may act as a portal of further invasion and eventually formation of a foreign body granuloma.

Pilonidal disease can present in a couple of different disease states, but the most common seen in the ED is a painful, swollen lesion in the sacrococcygeal region about 4-5 cm posterior to the anal orifice. At times, spontaneous drainage may have occurred prior to presentation to the clinician.

Usually, the patient is afebrile and nontoxic. Local examination may show a relatively unremarkable sinus tract in the sacrococcygeal region, but, usually at ED presentation, the patient has typical findings of an abscess, including redness, warmth, local tenderness, and fluctuance with or without induration. Loose hair may be seen projecting from the site. **(Burnstein: 1993)**

Causes of pilonidal disease involves loose hair and skin and perineal flora. Risk factors for pilonidal disease include male gender, hirsute individuals, Caucasians, sitting occupations, existence of a deep natal cleft, and presence of hair within the natal cleft. Family history is seen in 38% of patients with pilonidal disease. Obesity is a risk factor for recurrent disease.

The most commonly reported bacteria cultured from pilonidal abscesses differ by author. In one study, anaerobic cocci were present 77% of the time; aerobic, 4%; and mixed aerobic and anaerobic, 17%. Other studies quote *Staphylococcus aureus,* an aerobe, as being the most common In summary, 3 pieces are instrumental in this process: (1) the invader, hair; (2) the force, causing hair penetration; and (3) the vulnerability of the skin. This process has been well characterized by Patey and Scarff as well as a number of other authors from the second half of the 20^{th} century through today.

Microscopically, the sinus where the hair enters is lined with stratified squamous epithelium with slight cornification. Additional sinuses are frequent. Cyst cavities are lined with chronic granulation tissue and may contain hair, epithelial debris, and young granulation tissue. Cutaneous appendages are not seen in the wall of cysts. Cellular infiltration consists of PMNs, lymphocytes, and plasma cells in varying proportions. Foreign body giant cells in association with dead hairs are a frequent finding**. (Dinay & Aboul: 2009)**

The most common surgical modalities for treatment of pilonidal sinus include; open excision for all tracts, other procedures include; Excision of

coccyx to reduce suture line tension, Skin flap advancement to obliterate the natal cleft, Excision of sinus with Z plasty,Gluteus maximum myocutaneous flap, Karydakis Technique, Bascom's Technique, Excision and direct closure, Bascom's cleft closure Technique, Rhomboid flap Technique, Excision and Saucerisation Technique, Marsupialisation, D- Excision Technique, Gluteal muscle myocutaneous flap and Multiple Z-Plasty Technique**. (Doll et al,: 2008)**

Excision and healing by open granulation is one of the several procedures practiced since long, however it takes months to heal and needs regular dressing and meticulous wound care. While excision with primary closure obviates a large wound, the incidences of complications, such as infection, wound dehiscence and recurrence are high.

We will discuss the benefits of cutaneous flaps in the closure of defects after excision of pilonidal sinus in addition to reviewing other surgical modalities.