**A DISEASE THAT SHOULD BE REMEMBERED:**

**SACROCOCCYGEAL PILONIDAL SINUS DISEASE and SHORT HISTORY**

**(Sacrococcygeal Pilonidal Disease and History)**

1 Burhan Hakan KANAT Specialist of General Surgery

2 Selim SÖZEN

1. Elazığ Training and Research Hospital, Department of General Surgery
2. Namık Kemal University of Medical School, Department of General Surgery

**Corresponding Author:** Burhan Hakan KANAT, Specialist of General Surgery

Elazığ Training and Research Hospital, Department of General Surgery

23180, Elazığ, Turkey

Telephone: +90-424-2381000/1408 E-mail: ku318@mynet.com

**Keywords :** Pilonidal Sinus , History, Anorectal disease

**TEXT**

Science, medicine in particular, cannot be valued unless it is written. Anything that is not written cannot be read. Therefore, unread science and interventions could not be learnt and known. The basic rule of knowledge of medical experiences and interventions is written. It should be published open to people’s reach after it is written, so the information can be transferred to the new generations.

Therefore, the beginning dates of many diseases as old as the history of humans is the date that they were written for the first time. This date is 1833 for pilonidal sinus disease. Herbert Mayo, British Physiologist, Anatomist and Surgeon (3rd April 1796-28th June 1852), described it as a sinus containing hair follicles located in the sacrococcygeal region in a woman in 1833 (1, 2).

Afterwards, an article published by Abraham Wendell Anderson (1804-1876) named “Hair Extracted from an Ulcer” in “Boston Medical Surgical Journal” in 1847 was found (3). He reports a case of a 21-year-old male with a Scrophuloderma on his back in his article written as a letter to the editor. He reported that he drained the cavity after 3 weeks and a structure looking like a mesh made of multiple hairs of 2 inches long and after complete drainage and cleaning of the hair in the cavity, the wound healed quickly (3,4). 7 years after in 1854 Warren reported 3 similar cases and this study is the first case series known in the history of pilonidal sinus disease (5).

The disease was given many names until 1880. Widely used ones are; sacral, coccygeal or sacrococcygeal infundibulum, dermoid and dermoid fistula, congenital dermal sinus and sacrococcygeal ectodermal sinus (6).

Eventually, in 1880, Richard Manning Hodges named the disease with the statement of “I venture to give the name of pilo-nidal (pilus, a hair, nidus, a nest) sinus to this rather singular lesion.” He produced the word ‘pilonidal’ by conjoining the word ‘pilus’ which means hair in Latin and ‘nidus’ which means nest (7, 8).

Discussions about pilonidal sinus disease are still hot even though it was described 200 years ago. In the beginning years, many theories to describe whether the disease is congenital or acquired, there were many fevered arguments.

Some 80 years ago, Gage reported that pilonidal cyst and sinuses are congenital and he was supported (9). According to the congenital disease theory, it might have originated from caudal remnants of the neural tube, dermal inclusions produced by sequestrated epithelial structures or dermal tractions that are produced during the involution of the tail during embryonic development (9-11).

The disease was a commonly seen problem among soldiers in World War II, during which important explorations and developments were seen in medicine. It was detected to be particularly common among jeep drivers. It was emphasized that compression and irritation reaching the coccyx is important in the etiology and Loui Buie (1890-1975) stated that the disease is acquired in his article named “The Jeep Disease” (12).

Patey and Scarf demonstrated that it might be seen in other regions of the body in 1946, after the war. He wrote that a granulomatous reaction takes place following hair penetration of sub dermal tissue. In addition, he claimed that it is acquired, as it is also seen in the hands of barbers (13). Afterwards the idea of the disease being acquired became stronger with articles written by King in 1947 and 1950 (14, 15).

Two important names that shook the last 20 years of modern surgery in pilonidal disease supported and explained acquired disease theory as the discussions go on. Jason Bascom says: “Only the bones get up when people stand up. Sacrum has to stick on to and pull up skin, fat and muscles to move the buttocks. This pulling process produces a vacuum effect all over the gluteal region. Hair enters the pit in case of a minor folliculitis as a result of the vacuum produced by the movement of the gluteal region.” (16-19).

George Karydakis, who published the largest pilonidal sinus case series in 1992, developed the most logical theory about the etiology and etiopathogenesis of the disease. He reported as a result of his 35 years of work on pilonidal sinus that the etiology is acquired. Especially minor local trauma is the most important predisposing factor of the disease. Hair penetration process is the basis of pilonidal sinus according to Karydakis. Three main factors play a role in embedding of hair: Invaders formed by free hair (H-hair), the force that provides hair embedding the (F-force), and the vulnerability of the skin that lets the embedding of the hair deeper in the gluteal region (V-vulnerability). Pilonidal sinus disease develops in cases in which these three factors are present together and the disease development possibility could be calculated with HxFxV formula (20, 21). As a result, recently most surgeons are in the opinion that the disease is acquired.

What about the treatment besides the discussions about the name and etiology? No consensus is obtained about the treatment even though tens of treatment options are written and discussed.

One might think who cares about the treatment of a pilonidal sinus as there are many life threatening diseases in the field of general surgery. However tens of surgical and non-surgical treatment options are described. Discussions continue as the treatment options have advantages and disadvantages, and no option is preferable to the other ones significantly. Different surgical procedure descriptions and modification of surgeons different procedures themselves lead to increased numbers of surgical techniques (22).

The ideal treatment for pilonidal disease should be simple, with short hospitalization, less pain, local anesthesia if possible, low cost, the patient should go back to daily activities in a short time and recurrence rates should be low after treatment. Combination of all these measures is not possible for all treatment options. Therefore, treatment procedures must be planned according to the patient.

Conservation or a surgical method should be chosen when the treatment is planned according to the patient. Unnecessary surgical operations should be avoided for patients that could be treated conservatively and also time and workforce waste should be avoided for a patient that requires surgical treatment by trying a conservative treatment.

Many surgical techniques are present from simple surgical treatment methods such as incision, drainage, unroofing, curettage, and secondary healing, to the described and modified techniques such as excision flap, Karydakis, Bascom, MacFee (16-23). In addition, conservative methods such as phenol solution, crystalized phenol technique, cauterization, and alcohol injection have also been used (24-27). No consensus was obtained as all authors advocate their own method. Treatment has to be planned according to the disease and the patient. Natural evaluation, recurrence causes of the disease must be known very well and the state of the sacrococcygeal region should be evaluated carefully.

Pilonidal sinus caused interest in many aspects. Many materials such as the effect on quality of life and relationship with hormones were investigated and found place in the literature (25, 28). Besides all these processes there is consensus about the symptoms and clinical presentation of the disease. Patients present with 4 different forms as symptomatic, acute pilonidal abscess, chronic fistulizing form or complex pilonidal sinus disease. Chronic fistulizant form is the most common clinical presentation (26).

Where and how does the pilonidal sinus disease stand in general surgery? General surgeons used to take care of orthopedic emergencies, plastic, cardiovascular and thoracic surgery in 1950s. However, increased number of specializations emerged with the development of technology. Today, especially after the millenium a big portion of general surgeons in academic field are interested in specific fields of general surgery. Pilonidal sinus became a part of colorectal surgery as many diseases are addressed to specific fields. For example surgeons and centres interested in hepatobiliary surgery, peripheric vascular surgery or transplantation surgery are distant to the subject.

I hope that surgeons working outside of big centres with specialization in specific surgical fields and colorectal surgeons will continue to pay adequate attention and each of us will take his/her part.

There is no such a thing as major or minor in surgery. Therefore, pilonidal sinus disease should not be underestimated. Sometimes treatment might disappoint both the surgeon and the patient. At a point that you think everything is going very well, you are face to face with repeating surgeries, insecurity and dissatisfaction of the patient, and fear of surgical failure.

With the hope that pilonidal sinus is never underestimated nor forgotten…

**Conflict of Interest**

No conflict of interest was declared by the authors.

**Financial Disclosure**

The authors declared that this study has received no financial support.

**REFERENCES**

1. Mayo OH. Observations on Injuries and Diseases of the Rectum. London: Burgess and Hill; 1833
2. Amit Khanna, John L. Rombeau. Pilonidal Disease. Clin Colon Rectal Surg. 2011 March; 24(1): 46–53.
3. Anderson AW (1847) Hair extracted from an ulcer. Boston Med Surg J 36:74–76
4. Colon and Rectal Surgery . Editor: Marvin L. Corman - 2005 - ‎Medical page:616
5. Warren JM (1854) Abscess containing hair on the nates. Am Jour Med Sci 28:113
6. Henry P. Kooistra .Pilonidal sinusesReview of the literature and report of three hundred fifty cases. Amer J Surg 01/1942; 55(1):3-17.
7. Hodges RM (1880) Pilonidal sinüs. Boston Med Surg J 103:485– 486
8. de Parades V, Bouchard D, Janier M, Berger A. Pilonidal sinus disease. J Visc Surg. 2013 Sep;150(4):237-47.
9. Gage M. Pilonidal sinuses: an explanation of its embryologic development. Arch Surg 1935;31: 175-189.
10. Gage M. Pılonıdal Sınus: Sacrococcygeal Ectodermal Cysts and Sınuses. Ann Surg. 1939 Feb;109(2):291-303.
11. Stone HB. The origin of Pilonidal Sinus. Ann Surg 1931; 94: 311-15.
12. Buie LA. Jeep disease. South Med J 1944; 37:103-9.
13. Patey DH, Scarff RW. Pathology of postnatal pilonidal sinüs: Its bearing on treatment. Lancet 1946;2:484.
14. King ES. The nature of the pilonidal sinus. Aust N Z J Surg. 1947 Jan;16(3):182-92.
15. King ES. The intedigital pilonidal sinus. Aust N Z J Surg. 1949 Aug;19(1):29-33.
16. Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. Surgery. 1980 May;87(5):567-72.
17. Bascom J, Bascom T. Utility of the cleft lift procedure in refractory pilonidal disease. Am J Surg. 2007 May;193(5):606-9.
18. Bascom J. Pilonidal disease: long-term results of follicle removal. Dis Colon Rectum. 1983 Dec;26(12):800-7.
19. Bascom J. The pathophysiology of pilonidal disease. Page5-15. The surgical treatment of pilonidal disease. Editor:Ekmel Tezel. Nobel Tıp Kitapevleri Ankara
20. Karydakis GE. New approach to problem of pilonidal sinus.Lancet 1973;11:144-5
21. Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. ANZ J Surg 1992;62:385–9.
22. Maurice BA, Greenwood RK (1964) A conservative treatment of pilonidal sinus. Br J Surg 51:510–512
23. Girgin M, Kanat BH, Ayten R, Cetinkaya Z, Kanat Z, Bozdağ A et al. Minimally invasive treatment of pilonidal disease: crystallized phenol and laser depilation. Int Surg. 2012 Oct-Dec;97(4):288-92.
24. Girgin M, Kanat BH. The results of a one-time crystallized phenol application for pilonidal sinus disease. Indian J Surg. 2014 Feb;76(1):17-20.
25. Emir S, Topuz O, Kanat BH, Bali I. Sinotomy technique versus surgical excision with primary closure technique in pilonidal sinus disease. Bosn J Basic Med Sci. 2014 Nov 12;14(4):263-7.
26. Kanat BH, Bozan MB, Yazar FM, Yur M, Erol F, Ozkan Z. et al. Comparison of early surgery (unroofing-curettage) and elective surgery (Karydakis flap technique) in pilonidal sinus abscess cases. Ulus Travma Acil Cerrahi Derg 2014;20(5):366-370.
27. Kayaalp C, Olmez A, Aydin C, Piskin T, Kahraman L. Investigation of a one-time phenol application for pilonidal disease. Med Princ Pract 2010;19:212-5.
28. Özkan Z, Aksoy N, Emir S, Kanat BH, Gönen AN, Yazar FM, Çimen AR. Investigation of the relationship between serum hormones and pilonidal sinus disease: a cross-sectional study. Colorectal Dis. 2014 Apr;16(4):311-4.