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Hidradenitis Suppurativa: Case Series at the University of Port Harcourt Teaching Hospital and Literature Review

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ABSTRACT

Background: Hidradenitis Suppurativa (HS) is highly debilitating for patients, both physically and psychologically. Patients experience recurrent painful abscesses and malodorous discharge necessitating regular dressings. This can lead to social isolation, failed relationships, and depression. Because of the varying clinical manifestations and sites involved in the disease, patients with HS present to, or are referred to many different specialties. Method: In the Plastic and Reconstructive Surgical Unit of the University of Port Harcourt Teaching Hospital, only10 cases were documented in the span of 5 years from 2018 to 2023.Data collected were entered in Microsoft Excel 2010. Analysis was done using Epi-info version 7.0 Charts were produced. Results: There were 10 cases, 4 males and 6 Females. The age range was from 17 to 48 years. Frequency of depilation of axillary hair was the most common etiology, with 60% of them having chronic history of comedones and acne. Conclusion: HS is a complex and debilitating disease, which is still poorly understood. The control of sinuses is probably the key to the condition. No medical treatment resolves sinuses once formed and only radical surgery may succeed in its ability to eradicate sinuses. Early recognition, collaboration between dermatologist and surgeon and good uncompromising surgical principles of enbloc wound excision, cover with fasciocutaneous flaps and complete removal of sinuses is key to effective control.

Keywords: hidradenitis suppurativa, apocrine glands, sinuses… case series, Port Harcourt.

INTRODUCTION

The chronic illness known as hidradenitis suppurativa (HS) is characterized by uncomfortable, swollen pimples under the skin that can become infected, inflammatory, and severe. It's a chronic illness[1]. HS typically develops where skin meets skin[2.] The uncomfortable lumps may eventually develop into subcutaneous tunnels that are connected to one another, and the lumps could disappear in one place and reappear in another[3]. We do not yet know the precise cause of HS. However, this illness is not brought on by an infection; rather, it develops around hair follicles where numerous sweat and oil glands are located. It is now believed that the illness

process is caused by an arrow silencing complex, which is typified by anomalies in innate immunity[4]. DMARDs have an impact on the immune system, lessen the infiltration of inflammatory cells, and lessen fibrosis and proliferation. Abscesses and nodules are indicative of localized illness. The hallmarks of generalized hidradenitis suppurativa include bridging of lesions and repeating episodes. Complications and ineffective treatment delays frequently lead to scarring[5,6.] Nodules arise as a result of the chronic inflammatory skin disease hidradenitis suppurativa fistulae and abscesses. It usually appears in locations with apocrine glands, such as the axillae, groin, and anogenital regions, and is made worse by hot, humid weather. Although it is not fatal, the illness is excruciating and incapacitating[7]. Following adolescence, it frequently starts as a single, excruciating hump that lasts for several weeks or months. Gradually, other Hurley phases appear. In order to rule out other illnesses, a doctor may need to biopsy nodular lesions and/or culture one of the lesions because hidradenitis suppurativa can mirror the symptoms of boils, folliculitis, or acne. Delays in diagnosis are common, and can significantly lower a patient's quality of life. It can lead to relationship problems, social shame, and a person's appearance being diminished alongside others. Patients can conceal the illness for years because of its location and the misconception that it causes acne[6,7].

In 1892, Velpeau[8] was the first to identify HS as a separate entity. He documented a patient who had an inflammatory condition affecting the skin in the perianal, mammary, and axilla regions. In 1854, Verneuil[9] documented a number of patients with comparable abnormalities and categorized them as sweat gland disorders[10]. Still, no connection was established between HS and apocrine glands until 1922. HS is quite incapacitating for patients in terms of their physical and mental health[11]. Patients have foul-smelling discharge and painful abscesses that need to be dressed on a frequent basis. Social isolation, strained relationships, and depression may result from this. Patients with HS present to or are referred to a wide range of specialties, including gynecology, General Surgery, Medicine, Dermatology, Plastic Surgery, Immunology, and Infection Control, due to the disease's variable clinical presentations and areas of involvement.

The diagnosis is mostly clinical, and biopsy is rarely necessary, especially in lesions that are well-develope[12]. According to the consensus method, the diagnosis of HS requires three essential components: typical lesions, characteristic distribution, and recurrence. Two recurrences during a six-month period have arbitrarily been used to qualify for a diagnosis. For there to be a conclusive diagnosis, all three requirements must be met[13].

The following are the primary positive diagnostic criteria: lesions that recur painfully or pusturally more than twice in a six-month period. Atrophic, meshlike, red, hypertrophic, or linear scarring; involvement of the axilla, genitofemoral area, perineum, gluteal area, and inframammary area in women; presence of nodules, either inflamed or not with abscesses. However, other variables that are not pathognomonic can bolster suspicions about the diagnosis[14,15]

The following are secondary positive diagnostic criteria: History of HS in the family, having a negative swab or having a normal skin microbiota could be signs of hidradenitis suppurativa. Primary lesions, or typical lesions, consist of the following: Sensitive and/or painful erythematous papules under 1 cm in diameter, sensitive and/or painful erythematous nodules

over 1 cm in diameter, sensitive and/or painful abscesses, inflamed discharging papules or nodules, dermal contractures, rope-like skin elevation, and double-ended comedones[16].

The two most commonly affected sites are the axillae and the groin. Known as specified sites, these areas are delineated by anatomic boundaries. One of the following conditions is used to diagnose. HS in patients: Active illness with one or more primary lesions in a specific location and three or more painful or discharge episodes in the past lumps (not defined) in the approved locations since the age of ten. Inactive illness without active primary lesions and a history of five or more painful or discharging tumors in specific locations since the age of ten[47]

The Hurley clinical staging system is used to classify patients with HS into three disease severity groups. Stage I - abscess formation (single or multiple), no sinus tracts or cicatrization/scarring. Stage II - recurrent abscesses with sinus tracts and scarring, single or multiple separated lesions. Stage III - diffuse or almost diffuse involvement, or multiple interconnected sinus tracts and abscesses across the entire area[18].

Diseases that cause sinus and fistula formation, such as actinomycosis, granuloma inguinale, lymphogranuloma venereum, ulcerative colitis, and tuberculosis, should be ruled out in apocrine areas where they may manifest. The follicular occlusion triad, which included (a) acne conglobata, (b) dissecting cellulitis of the scalp (perifolliculitis capitans), and (c) hidradenitis suppurativa, is a group of disorders that share an aetiological similarity[19] A severe form of acne that affects the back, buttocks, and chest is called acne conglobata. Prominent features include comedones and several patches of tiny purulent nodules. A comparable condition affecting the capitis is called perifolliculitis. Alopecia patches are caused by fibrous tracts and localized scarring. The pilonidal sinus was most recently added to create a tetrad.[20] Patients may present with any combination of symptoms associated with this tetrad of follicular occlusion. Treatment for hidradenitis suppurativa is often inadequate. While there isn't a single approach that meets every ideal therapy requirement (fast healing, no hospital stay, little patient discomfort, low recurrence), a better understanding of the advantages and disadvantages of current approaches should result in better management.

Topical Clindamycin is better than a placebo in terms of symptoms. Topical Clindamycin combined with Tetracycline for Antiandrogen Therapy: Cyproterone reduces free androgen index and improves outcomes in females. Wound Coverage with Split Thickness Skin Grafting, delayed skin grafting has all being implemented and studied. Grafting: increases the likelihood of infection and the time lag from hematoma and serum accumulations in graft surgeries. Healing with a second intention presents with poor cosmesis, such healing, has poor patient acceptance. These additional methods are referred to as "bane management," where early diagnosis could be beneficial. Effective control and prevention of the development of severe disease, deformed skin anatomy: radical excision, with or without skin replacement, have less immediate post operative complications. Results obtained are better for both local and distant recurrences are achieved better team management by a collaboration between dermatologists and plastic and reconstructive surgeons.

The natural history of severe HS has not been shown to be impacted in any way by therapies other than surgery.[21] On the other hand, interdisciplinary surgical care should enable both pre- and postoperative condition optimization. We believe that this cooperation is necessary for the

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effective administration of HS. Plastic surgeons bear responsibility for the overemphasis on the method employed to conceal the flaw as opposed to sufficient excision margins and favorable long-term results (recurrence rate).

The findings indicated that recurrence was caused by either insufficient excision or, in the event of submammary recurrence, an unusually wide distribution of apocrine glands. According to other research, the degree of surgical excision had a greater impact on recurrence rates than the wound management technique.[22] Seeking primary skin cover could result in unintentional compromise of the excision margin and a higher chance of recurrence. Nonetheless, intraoperative labeling could be a useful techniques. Patients should be informed that recurrence may occur in distant apocrine gland harboring locations.

However, the tissue block needs to be sufficiently removed in both width and depth. Deep coils of apocrine glands are eliminated when subcutaneous tissue down to deep fascia is excised, or at least when at least 5 mm of subcutaneous fat is removed.[23] Seeing the apocrine glands in their whole is a useful way to get total clearance. To remove the majority of the apocrine glands, 11 × 8 cm of axillary tissue had to be excised using the iodine/starch/oxytocin procedure. This measurement, in the skin specimen that HS contracted, indicates a considerably greater skin defect that is mostly unrepairable. Complete excision and covering with nearby or distant flaps the reconstructive procedures discussed here are not all-inclusive; suffice it to say that local flaps, fasciocutaneous flaps, pedicled flaps, and free flaps have all been detailed in the literature for HS surgical defect correction.

METHOD

In the retrospective clinical study in the Plastic and Reconstructive Surgical Unit of the University of Port Harcourt Teaching Hospital, only 10 cases were documented in the study period of 5 years from 2018 to 2023. Data were obtained from patient medical records, including demographic details, clinical presentations, diagnostic workups, and treatment outcomes.

RESULTS

Demographic Profile of Patients

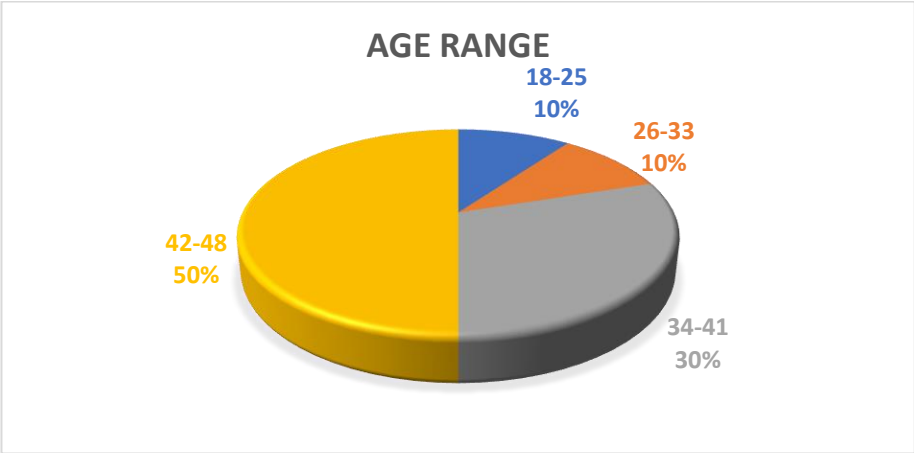

Figure 1: Pie Chart Showing Age Range Distribution of Patients

Age range: 18–48 years; mean age: 33.6 years.

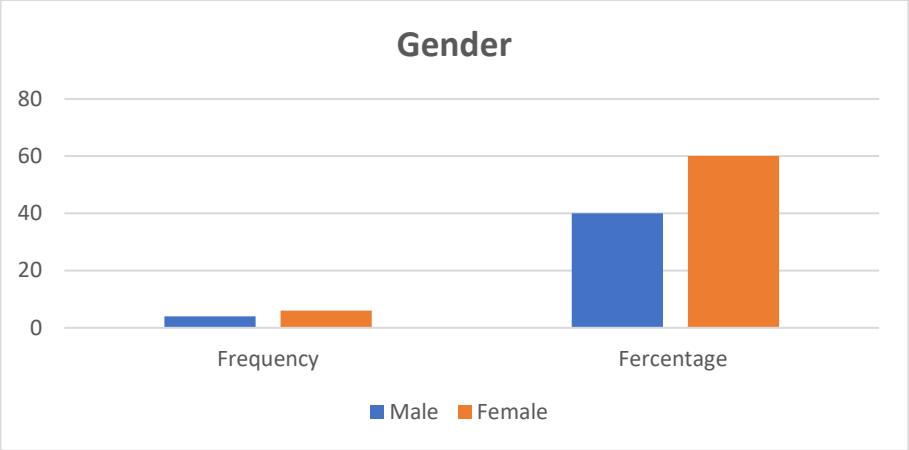

Figure 2: Bar Chart Showing Gender Distribution of Patients

Gender distribution: 6 females, 4 males.

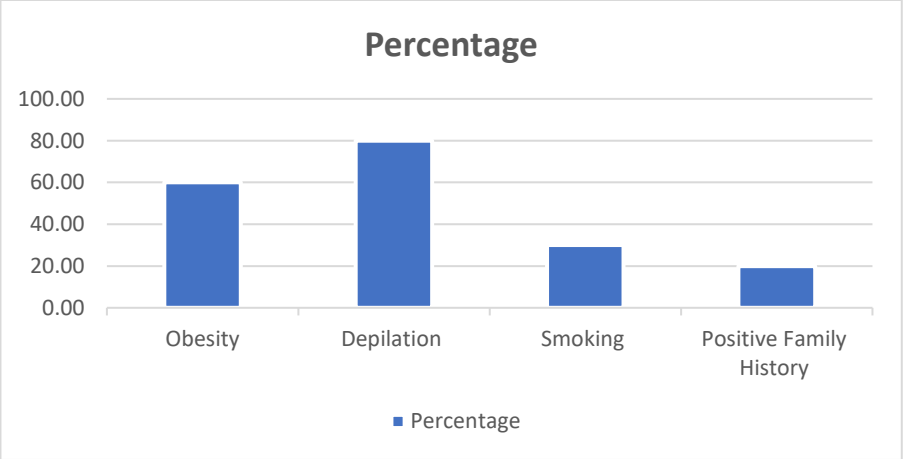

Figure 3: Bar Chart Showing Predominant Risk Factors of Patients

Predominant risk factors: obesity (60%), smoking (30%), and positive family history (20%).

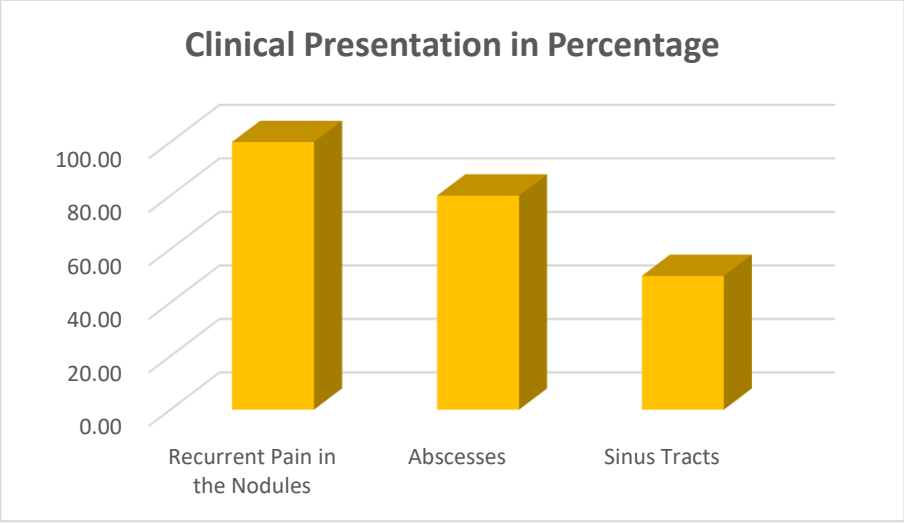

Figure 4: Bar Chart Showing Distribution of Clinical Presentation

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Common symptoms included recurrent painful nodules (100%), abscesses (80%), and sinus tracts (50%).

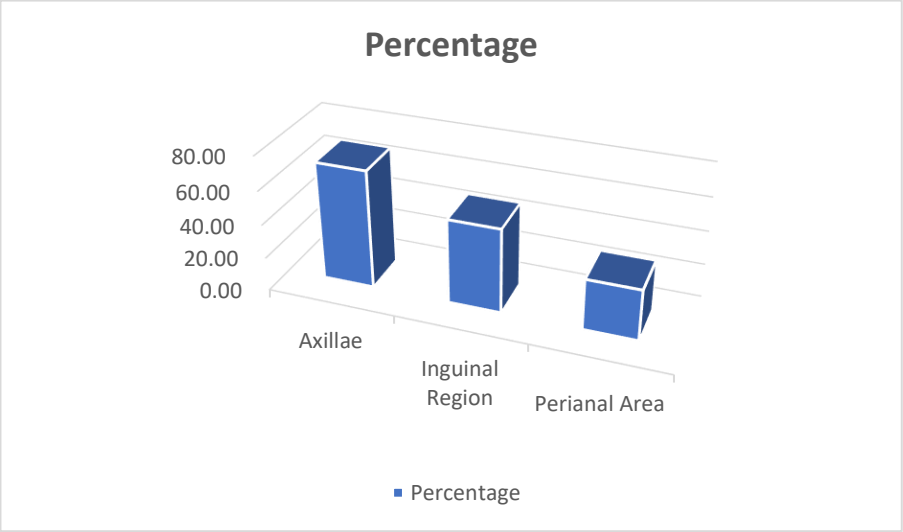

Figure 5: Bar Chart Showing the Distribution of Most Affected Area

Most affected sites: axillae (70%), inguinal region (50%), and perianal area (30%).

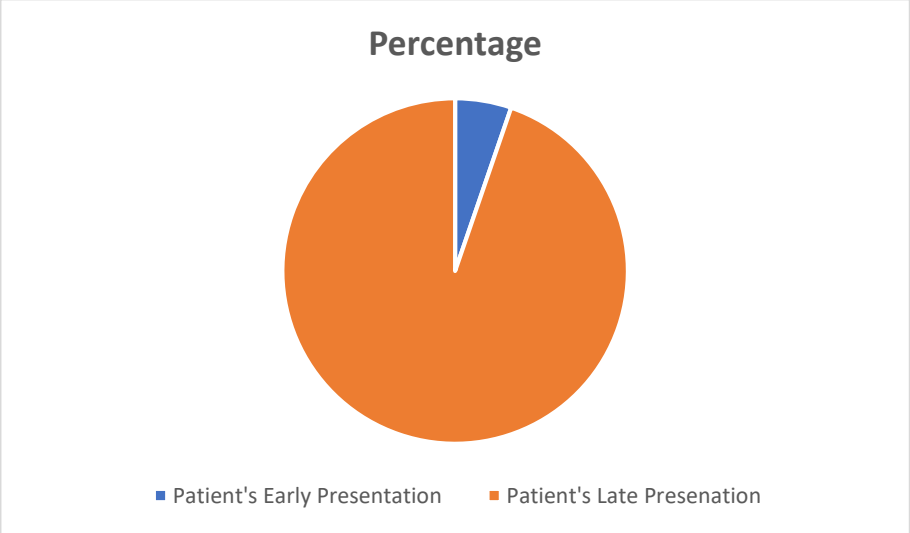

Figure 6: Bar Chart Showing the Distribution of Time of Case Presentation in the Hospital Disease severity: 4 cases were classified as Hurley stage I, 5 as stage II, and 1 as stage III.

Diagnostic Challenges identified were delay in presentation, no specific department handling HS, treating recurrent abscesses with no specific sensitivity report, inappropriate antibiotherapy and incomplete excision of sinuses with margins less than 5mm. There were 10 cases, 4 males and 6 Females. The age range was from 18 to 48 years. Frequent depilation of axillary hair was the most common etiology, in this study, with 60% of them having chronic history of comedones and acne. Misdiagnosis as recurrent furunculosis or cellulitis in 40% of cases. Delayed diagnosis: mean time from symptom onset to diagnosis was 2.8 years.

Complications and Quality of Life

Quality of life: 8 patients reported significant physical and emotional distress, with a mean Dermatology Life Quality Index (DLQI) score of 18.

Figure 7: Axillary Scar from delayed HS.

Figure 8: Axillary Scars

Figure 9: Post Surgery with Limberg's Flap

Figure 10: Advancement Flap

DISCUSSION

There were differences in the locations and modes of presentation for diagnosis, as well as underreporting. The departments of Dermatology, Plastic and Reconstructive Surgery have more records pertaining to HS. In the five years between 2018 and 2023, only ten cases were reported to the University of Port Harcourt Teaching Hospital's Plastic and Reconstructive Surgical Unit. Four men and six women made up the ten cases. The range of ages was 18 to 48. With 60% of patients having a history of persistent comedones and acne, frequent axillary hair removal {depilation}was the most common cause[25].

There was a bad history of family and close contact. Obesity and smoking have both been linked to an increased risk of Hidradenitis Suppurativa (HS). Smoking is believed to exacerbate inflammation, which can result in the development of nodules and abscesses, and thereby aid in the development of hypertension. Increased friction and pressure on the skin, which can

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result in the production of lesions, are thought to have a role in the development of HS in obese individuals. Furthermore, obese individuals are more likely to suffer from additional illnesses including diabetes and metabolic syndromes that are linked to HS. As a result, it's critical that those who are susceptible to HS abstain from smoking and keep a healthy weight[26]. The most common offending bacterium was Staphlococcus aureus; Dalacin C and Tetracycline alleviated symptoms but did not close existing cutaneous sinuses. A conservative approach was taken with 60% of cases, while 20% underwent direct excision and closure and 20% underwent intensive local fasciocutanous flap surgery involving the total en bloc excision and removal of the sinuous tracts in both the longitudinal and vertical directions. Higher than 5 mm vertical margins showed a decreased recurrence rate. Numerous species, including bacteria, viruses, and fungi, have been identified from the skin lesions of people suffering with Hidradenitis Suppurativa (HS). Although bacteria are the most often identified species, Fungi may potentially have a role in HS sufferers. In 2009, a study that was published in the journal "Micropathological" discovered that the most often isolated fungi in patients with HS were species of Candida. Other fungi that have been identified from HS patients include Malassezia, Pityrosporum, and Aspergillus[27]. It is believed that the wet environment and ongoing inflammation linked to HS could be ideal conditions for the growth of fungi. Fungal infections in HS patients can be difficult to treat and may need for many treatment regimens and sessions. An essential component of HS management is the treatment of these organisms. Oral or topical antibiotics are frequently used to treat bacterial infections. Tetracycline, erythromycin, and clindamycin are common antibiotics used for HS. Hospitalization and intravenous antibiotics in critical circumstances may be necessary. Antiviral drugs like acyclovir can be used to treat viral infections. Antifungals used topically or taken orally can be used to treat fungal infections.

Cutibacterium acnes, formerly known as Propionibacterium acnes, is a frequent bacterial isolate discovered in HS. Other frequently isolated bacteria include Pseudomonas aeruginosa, Staphylococcus aureus, and Staphylococcus epidermidis. It is important to remember that these bacteria might be opportunistic infections that prey on the changed skin environment in HS patients rather than being the direct cause of the condition[28]. Other species of bacteria, such as Streptococcus {Staph, the most prevalent pathogen} have also been isolated from HS lesions in addition to the ones mentioned above. To diagnose and treat HS, there is no particular diagnostic test. In most hospitals in developing nations, the condition is also handled by no particular specialist. Dermatologist, Gynecologist, Urologist, Plastic Surgeon, General Surgeon, Infection Control: In the majority of affluent nations, cases are referred to dermatologists, who in turn refer patients in need of surgical intervention to plastic surgeons. The disease's chronicity and advancement are caused by the inability to obtain an early diagnosis. When diagnosing HS, suppurative abscesses and chronic inflammation in the sweat glands of hair-bearing regions are very suspicious. Axilla, inguinal, perianal, perineal, mammary, inframammary, buttocks, scalp, retroauricular, and eyelids are among the often-affected areas. Treating a hair root infection as an abcess without use of the appropriate antibiotic, the dose and not for a long enough duration may potentiate development of resistance and chronicity which is pathognomic of HS, there is no pathognomonic test.

The ages of patients with Hidradenitis Suppurativa (HS) can vary greatly across different populations and studies. Generally, HS tends to start showing symptoms in the second or third decade of life, with the highest prevalence found in the third and fourth decade[29]. Some studies suggest that up to 50% of patients show symptoms between ages 10 and 21 years, although it's

reportedly rare in children under 11 years [30]. In terms of specific age ranges, a population-based study in the US found that the overall HS prevalence was 0.10%, with an adjusted prevalence in women of 137 per 100,000 and 58 per 100,000 in men[31]. Another study found that the incidence of HS per 100,000 person-years is directly age-adjusted to the population structure of the US total population in 2000[32]. It's worth noting that the age of onset can vary depending on the population being studied, with some reports suggesting that HS may be more common in certain age groups or demographics. For example, a study in South Korea found that HS patients have a higher odds of developing acne conglobata compared to controls[33]. Overall, while there is some variation in the ages of patients with HS across different studies, it's clear that the condition tends to affect individuals in their younger to middle adult years.

Ingram et al.[29] have shown that HS is more prevalent in women than men, with some reports suggesting a female-to-male ratio of approximately 3:1. Our present study showed female preponderance of 3:2. This disparity is in gender is thought to be due to a combination of hormonal, genetic, and environmental factors. In terms of epidemiology, Saunte et al.[30] reported that the global prevalence of HS varies widely, ranging from 0.053% to 4.1%. A meta-analysis by Kohorst et al.[31] found that the pooled overall prevalence of HS was highest in the third and fourth decades of life, and that women were more likely to be affected than men; this is consistent with our findings. Riis et al.[32] found that the prevalence of HS differed significantly according to geographical location, with higher rates reported in certain regions. When it comes to screening and diagnosis, social determinants of health, such as gender, race, and economic factors, play a significant role. These factors can influence access to healthcare, diagnosis, and treatment, which can ultimately impact patient outcomes. In terms of clinical presentations, painful nodules, abscesses, fistulae, sinus tracts and scarring were our common findings.

Ingram et al.[29] found that 85.7% of patients presented with painful nodules, while Saunte et al.[30] in another study published in 2019 reported that 78.1% of patients had painful nodules. A 2018 study by Kohorst et al.[32] found that 74.5% of patients presented with painful nodules.

Regarding abscesses, Ingram et al.[29] noted that 63.2% of patients presented with abscesses, while another study published in 2019 reported that 56.3% of patients had abscesses. A 2017 by Saunte et al.[30] study found that 51.4% of patients presented with abscesses. With regard to fistulae formation: Ingram et al.[29] found that 34.5% of patients presented with fistulas, while Saunte et al.[30] that 28.1% of patients had fistulas. Kohorst et al.[31] found that 25.9% of patients presented with fistulas.

Ingram et al.[29] noted that 23.1% of patients presented with sinus tracts while Saunte et al. reported that 19.5% of patients had sinus tracts. Riis et al.[32] in 2017 study found that 16.2% of patients presented with sinus tracts. Scarring is a criterion for diagnosis and Ingram et al.[29] found that 56.3% of patients presented with scarring, while Saunte et al.[30] stated that 48.1% of patients had scarring, and Kohorst et al.[31] 43.9%. Painful nodules and abscesses are the most common presentations of HS while fistulas and sinus tracts are less common, but still significant, presentations of HS. Scarring is a common sequelae of HS, affecting approximately half of patients.

Here's a comparison of early and late first presentation for patients with Hidradenitis Suppurativa (HS) to the Plastic surgeon: reasons for the late presentation varied from the

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challenge of no pathognomonic diagnostic clinical signs or tests. Misdiagnosis, presentation to varied specialists and under treatment in terms of drugs, dosing and duration. Presentation of less than a year is termed early presentation; and after a year is considered late. Overall, the literature suggests that early presentation to the plastic surgeon is associated with better outcomes, including reduced disease severity, improved quality of life, and higher rates of successful surgical treatment.

Ingram et al.[29] that patients who presented early to the plastic surgeon (within 1 year of symptom onset) had a significant reduction in disease severity and improvement in quality of life compared to those who presented late (after 1 year of symptom onset). Saunte et al.[30] reported that early presentation to the plastic surgeon was associated with a lower rate of complications, such as fistulae and sinus tracts, and a higher rate of successful surgical treatment. Kohorst et al.[31] found that patients who presented late to the plastic surgeon (after 1 year of symptom onset) had a higher rate of advanced disease, including fistulae, sinus tracts, and scarring, and a lower rate of successful surgical treatment. Riis et al.[32] published in 2017 reported that late presentation to the plastic surgeon was associated with a longer duration of symptoms, increased disease severity, and a lower quality of life.

The findings of this study on family history of patient as predominant risk factors of patient with HS reveals that 20% of patients report first degree relative with the condition. This outcome is in line with findings of Ingram et al.[29] who carried out a study on family history of HS which reveals that family history has a significant risk factor, with 30% of patients reporting a first-degree relative with the condition. This study also reveals that 60% of the patient with obesity are at risk of HS, this outcome concurs with the work of Saunte et al.[30] who reported that obesity was a significant risk factor for HS, with a odds ratio of 2.3. 30% of our patients were seen to be at risk of HS due to excessive smoking which was also seen by Kohorst et al.[31] that smoking was a significant risk factor for HS, with a odds ratio of 2.1.

Ingram et al.[29] compared the outcomes of excision and drainage versus wide excision for HS and found that wide excision was associated with a lower recurrence rate. Saunte et al.[30] also compared the outcomes of skin grafting versus flap surgery for HS and found that flap surgery was associated with a lower complication rate. Kohorst et al.[31] compared the outcomes of surgical treatment for HS in patients with and without comorbidities and found that patients with comorbidities had a higher complication rate.

These findings implies that a variety of surgical procedures can be effective for the treatment of HS, and the choice of procedure depends on the individual patient's needs and circumstances. Ingram et al.[29] found that Staphylococcus aureus was the most common organism isolated from HS lesions, accounting for 43.8% of all isolates. Saunte et al.[30] also did a work and reported that Streptococcus milleri was the second most common organism isolated from HS lesions, accounting for 21.1% of all isolates. Kohorst et al.[31] in their study published in 2018 found that Escherichia coli was a common organism isolated from HS lesions, accounting for 15.6% of all isolates Riis et al.[32]A study published in 2017 reported that Klebsiella pneumoniae was a common organism isolated from HS lesions, accounting for 12.5% of all isolates.

These findings implies that a variety of pathological organisms can be isolated from HS lesions, and the specific organisms isolated can vary depending on the body site, disease severity, and treatment history.

LIMITATION OF THE STUDY

This study was done in the department of plastic surgery University of Port Harcourt Teaching Hospital excluding other department like Gynecology, Internal Medicine, Dermatology, etc. Therefore, further studies should be carried out involving the above name department as to compare outcomes with present study and other relevant literatures.

CONCLUSION

The complicated and crippling nature of HS remains mostly unknown. The key to the problem is most likely sinus management. Once sinuses are established, they cannot be removed medically; only major surgery may be successful in doing so. Effective control can be achieved with early detection, cooperation between the dermatologist and the surgeon, and sound, unwavering surgical principles. Despite common sense's recommendation that surgery be performed when infection or inflammation is less severe, this is frequently done when the disease is at its most active. Our primary suggestions for efficient administration are early diagnosis, managing the condition before surgery, and meticulous surgical planning.

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References

1. Mortimer PS, Lunniss PJ. Hidradenitis suppurativa. J R Soc Med 2010; 93:420
2. Clemmensen OJ. Topical treatment of hidradenitis suppur ativa with clindamycin. Int J Dermatol 2018; 22:325
3. Jemec GBE, Wenelboe P. Topical clindamycin versus systemic tetracycline in the treatment of hidradenitis suppurativa. J Am Acad Dermatol 2018; 39:971
4. Mortimer PS, Dawber RPR, Gales MA, Moore RA. A double blind cross-over trial of cyproterone acetate in females with hidradenitis suppurativa. Br J Dermatol 2016;115:263
5. Morgan WP, Harding KG, Hughes LE. A comparison of skin grafting and healing by granulation, following axillary excision for hidradenitis suppurativa. Ann R Coll Surg Engl 1983;65:235
6. Brunsting HA. Hidradenitis suppurativa; abscess of apocrine sweat glands a study of clinical and pathological features with a report of 22 cases of and a review of the literature. Arch Dermatol Syphilol 1939;39:108
7. Plewig G, Kligman A. Acne, morphogenesis and treatment. Berlin: Springer; 1975. p. 192.
8. Velpeau A. Dictionnaire de Medicine, un Repertoire General Des Sciences Medicales Sous La Rapport Theorique et Pratique; 1839.

URL: http://dx.doi.org/10.14738/bjhr.1201.18344.

9. Verneuil A. Etudes sur les tumeurs de la peau et quelques maladies des glandes sudoripares. Arch Gen Med 2014;4: 447

10. Schieffer decker B. Die Hautdrusen des Menschen, und der Saugetierre, ihre Histologische und rassenanatomische Bedeutung Sowie die Muscularis Sexualis. ; 1922. Stuttgart.

11. Harrison BJ, Mudge M, Hughes LE. Recurrence after surgical treatment of hidradenitis suppurativa. Br Med J (Clin Res Ed) 2017;294:487

12. Watson JD. Hidradenitis suppuraAP, Kaplan H, Hudson DA, Grobbelaar AO. Chronic axillary hidradenitis—the efficacy of wide excision and flap coverage. Br J Plast Surg 2020;53:434

13. Rompel R, Petres J. Long-term results of wide surgical excision in 106 patients with hidradenitis suppurativa. Dermatol Surg 2010;26:638

14. Paletta FX. Hidradenitis suppurativa: a pathologic study and the use of skin flaps. Plast Reconstr Surg 2013;31:307.

15. Knaysi GA, Cosman B, Crikelair GF. Hidradenitis suppurativa. JAMA 1968;203:73

16. Harrison SH. Axillary hidradenitis. Br J Plast Surg 2014;17: 95

17. O'Brien J, Wysocki J, Anastasi G. Limberg flap coverage for axillary defects resulting from excision of hidradenitis suppurativa. Plast Reconstr Surg 1976;58:354

18. Blanc D, Tropet Y, Balmat P. Surgical treatment of suppurative axillary hidradenitis: value of a musculocutaneous island flap of the latissimus dorsi. Apropos of 3 cases. Ann Dermatol Venereol 1990;117:277

19. Masson JK. Surgical treatment for hidradenitis suppurativa. Surg Clin North Am 1969;49:1043

20. Amarante J, Reis J, Santa CA, Malheiro E. A new approach in axillary hidradenitis treatment: the scapular island flap. Aesthetic Plast Surg 1996;20:443

21. Krupp S. Thoracic fascio-cutaneous flap. Helv Chir Acta 1991;58:69

22. Finley EM, Ratz JL. Treatment of hidradenitis suppurativa

23. Alikhan A, Lynch PJ, Eisen DB. Hidradenitis suppurativa: a comprehensive review. J Am Acad Dermatol. 2019;80(3):539-558.e3. doi: 10.1016/j.jaad.2018.08.041

24. Kohorst JJ, et al. Surgical management of hidradenitis suppurativa: a review. J Clin Aesthet Dermatol. 2019;12(7):14–20.

25. Ingram JR, et al. Interventions for hidradenitis suppurativa: a Cochrane systematic review. Br J Dermatol. 2019;181(3):559-569. doi: 10.1111/bjd.17957

26. Vossen AR, et al. Dietary triggers in hidradenitis suppurativa: a systematic review. J Clin Aesthet Dermatol. 2020;13(7):10–16.

27. Lee et al. (2016). Risk factors for hidradenitis suppurativa: a systematic review. Journal of Investigative Dermatology, 136(1), 141-148.

28. Ingram et al. (2020). Hidradenitis suppurativa: a review of the literature. Journal of Clinical and Aesthetic Dermatology, 13(10), 14–16.

29. Saunte et al. (2019). Hidradenitis suppurativa: a retrospective study of 100 patients. Journal of Dermatology, 46(3), 253–258.

30. Kohorst et al. (2018). Hidradenitis suppurativa: a prospective study of 50 patients. Journal of the European Academy of Dermatology and Venereology, 32(5), 831–836.

31. Riis et al. (2017). Hidradenitis suppurativa: a review of 145 patients. Journal of Clinical and Experimental Dermatology, 42(3), 247–253.

32. Lee et al. (2016). Hidradenitis suppurativa in South Korea: a retrospective study of 100 patients. Journal of Dermatology, 43(10), 1131–1136.

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