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Case Series

Bowens disease: clinico pathological correlation with review of literature

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ABSTRACT

Bowen's disease is a type of squamous cell carcinoma in situ. It is most frequently diagnosed in the sixth to eighth decade of life. However, there have also been a few reports of pigmented Bowen's disease. A single or multiple erythematous, round to irregular, scaly, keratotic, nodular, pigmented patches/plaques are first signs of the lesion. All cases of Bowen's disease presented at a tertiary care centre over a period of seven years were included in this study. The patient details and clinical history were obtained from medical records. Histopathological slides of these cases were reviewed and analyzed. There were fourteen cases of Bowen's disease with most patients belonging to 5-6th decade of life (80%). Males were more commonly affected (60%). Duration of the lesion ranged between 3-5 years in 60% of the patients. Most common site involved was lower back (80%). Most common presenting feature was hyperpigmented, erythematous plaques with scaling seen in 90% of the patients. Epidermal changes such as marked acanthosis with full thickness atypia were noted in 90 % and hyperkeratosis, parakeratosis was noted in 70% of the patients. Lichenoid infiltrates at dermo-epidermal junction was noted in 70% cases. The correct identification helps in appropriate diagnosis and treatment after biopsy confirmation. Adequate resection helps in preventing risk of invasive malignancy in these conditions.

Keywords: Bowen's disease, Squamous cell carcinoma, Clinico pathological correlation

INTRODUCTION

Squamous cell carcinoma in situ, often known as Bowen's disease (BD), is a precancerous skin lesion that typically affects the epidermis. The skin exposed to sun is affected by the lesion, and it is typically an isolated lesion. There are a few instances where non-exposed parts are also involved. Usually, the head, neck, limbs, and trunk are affected. Subungual and genital regions are other affected locations. Bowen's disease is typically discovered in the fifth or sixth decade of life. It is an intraepidermal non-invasive non-melanocytic cancer.[1] Patients typically exhibit a single erythematous to pink, scaly patch or plaque that is growing and has irregular but distinct boundaries. Most instances are non-pigmented, while pigmented types do occasionally appear. Even though it is uncommon, 2% to 5% of Bowens disease cases are of the pigmented variety. In addition to pigmented types, acantholytic, atrophic, clear cell, epidermolytic, orthokeratotic, psoriasiform, pigmented, pagetoid, and verrucous-hyperkeratotic Bowens disease are the other histological variants of Bowen's disease. Ultraviolet exposure, immunosuppression, and Human Papilloma Virus (HPV) infections are the main etiological associations with Bowen's disease.[2] This study is to observe the clinicopathological correlation

found in our patients with Bowens disease. This is a retrospective study which included all cases of biopsy proven Bowens disease presented at our tertiary care hospital over a period of seven years. The clinical details were obtained from the medical records section of the hospital. A structured proforma including patients' clinical history, age, gender, symptoms, duration and clinical presentation were included in the study. Patients who were lost to follow up were excluded from the study group.

CASE SERIES

A total of 14 patients with biopsy proven Bowens disease were studied and findings including age, sex, duration, location, clinical symptoms and clinical presentation were observed and noted.

Figure 1: Clinical image showing a well demarcated hyperpigmented plaque/patch with scaling.

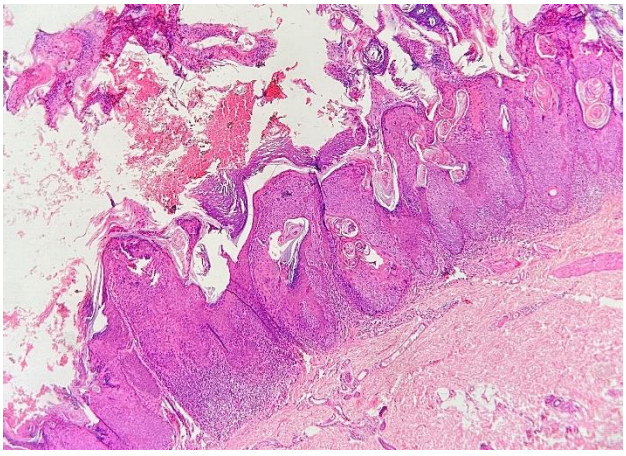

Figure 2: Light microscopy showing full thickness atypia in the epidermis (H&E X100).

Out of 14 patients, most common site of the lesion was lower back as seen in 8 patients, followed by sites like scalp, abdomen and gluteal region. Size of the tumor varied from 0.5-8 cms in greatest dimension. Duration varied between 1-15 years. Most common clinical feature was painful ulcer and presenting features were erythematous hyperpigmented plaque with ulceration in most of the patients. All clinicopathological features are summarized in (Table 1). Most of the cases presented as scaly plaques on clinical examination (Figure 1). Histopathologically, 8 out of 14 cases had features of acanthosis; spongiosis was seen in 4 out of 14 patients. Hyperkeratosis was present in six patients and parakeratosis was noted in four cases. Lichenoid infiltrate at the dermo-epidermal junction was seen in four patients. A classic "Windblown appearance" was observed in 12 out of 14 patients (Figure 2-4).

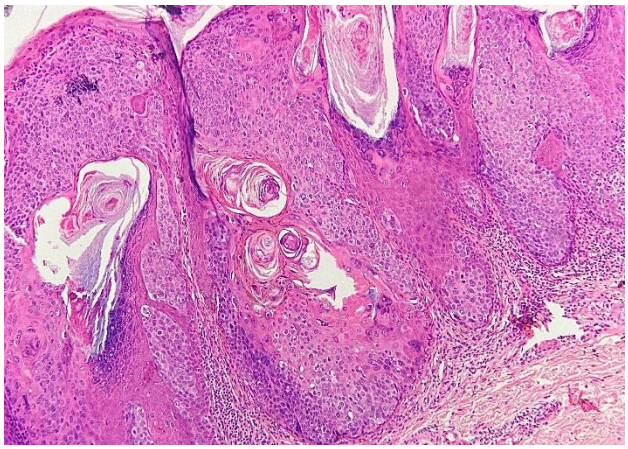

Figure 3 Light microscopy showing epidermal involvement with keratinocyte atypia (H&E X200).

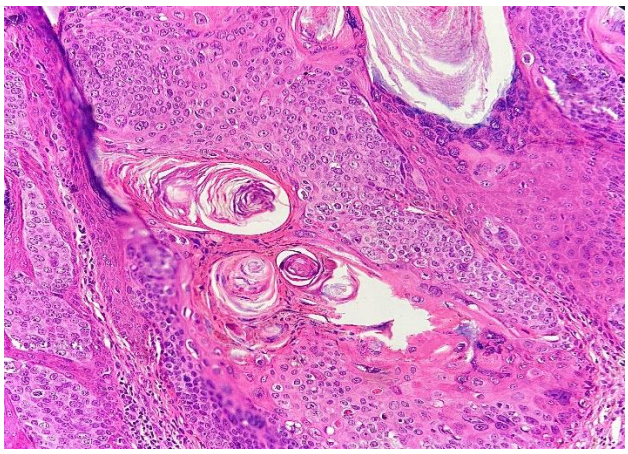

Figure 4: Higher power view of the cellular atypia with individual cell keratinization, few apoptotic cells also noticed.

DISCUSSION

Bowen's disease (BD), also known as squamous cell carcinoma in situ, is an uncommon premalignant lesion of the skin. It is characterized by a slowly enlarging erythematous to pink, scaly patch or plaque with irregular and well-demarcated borders, it's a type of non-

melanocytic intraepidermal lesion. It has a 3-5% risk of developing into invasive squamous cell carcinoma.[1] Bowen's disease typically manifests as a single lesion, while 10-15% of patients may have multiple lesions. Although the exact pathophysiology appears to be unknown, it is believed that a few variables, including ultraviolet radiation, carcinogens, immunosuppression, and infection with the human papilloma virus play a significant impact. The development of invasive squamous cell carcinoma is more prevalent among the elderly and immunosuppressed individuals.[2] It occurs as a result of the basement membrane being destroyed by metalloproteinases, and the progression is aided by the decreased expression of HPV E6 and E7.[3] Analysis of few patients who had clinically and biopsy proven Bowen's disease with a variable disease period is discussed here. Study by Scalvenzi et al showed that the mean age of patients affected with Bowen's disease was found to be 65 years (55-75 years).[4] Sirka et al found that most of the patients affected were between 55-70 years proving that 5th-6th decade of life is mostly affected.[5] Biswanath et al and Rashmi et al in a study compared and confirmed that most of the patients were elderly.[6] On conducting the study with a larger group of patients, Scalvenzi et al found that Bowen's disease was more prevalent in male patients than females. Sirka et al also found that majority of patients were males. Whereas, Palaniappan et al in his study has highlighted that there was a slight female preponderance.[7] This study on 14 patients also showed a female preponderance. Gahalaut et al and Pederson et al in a study proposed that majority of the patients showed lesions over the photo-exposed sites like head and neck, dorsae of hands and lower legs (70-75% patients).[8-11] Study by Kossard et al showed that the most common location was head and neck region (45%) followed by lower limb and upper limb (28%). Rare site like penis can also be affected, termed Erythroplasia of Queyrat which affects men mostly in 5th decade of life.[9] Another study by Cox et al revealed that the most common location involved was lower back (75%) followed by face and scalp.[10] Most of the patients from our study had lesions over lower back followed by abdomen, head and neck region. Gahalaut et al has documented pigmented lesions in few patients.[11] Similarly one of the patients in this study also had a pigmented lesion. Palaniappan et al and Swaroop et al in their study has revealed that etiology for Bowen's disease could be multifactorial. Photo sensitivity, race, genetics, sun exposure, arsenical exposure, viral infections like Human Papilloma Virus could be incriminated as causative factors. At times, immunosuppression and ultraviolet radiation could also play a role in etiology of the disease.

Dermoscopic examination seems to be feasible and useful. Biswanath et al conducted a study on a group of patients and found that dermoscopy findings showed brown keratotic area with clustered glomerular vessels and blood spots with blue-gray pigmentation with keratosis. Argenzio et al highlighted the dermascopic findings which showed the presence of glomerular or coiled vessels.[12] Gahalauti et al described the dermoscopic findings of a pigmented lesion as a blue homogenous pigmentation, irregularly distributed blue-gray granular structures, with pigmented crusting and white amorphous areas. Saurabh et al found that the presenting feature was generally an erythematous dermatitis and scaly plaques.[13] Massimiliano et al conducted a study on 182 patients where most of the lesions presented as slow enlarging, well demarcated erythematous to pink patch/plaque with irregular borders and scaly surface and crusting.[14] Sahra and Hayadeh et al did a study on five patients and almost all patients presented with erythematous plaque with dark red papules.[15] Our study conducted on 14 patients also showed erythematous scaly plaques/patch as the important presenting feature in 80% of the cases. According to the histological analysis, the epidermis is hyperkeratotic and has varying degrees of parakeratosis. There is elongation and thickening of rete ridges. The cells throughout the epidermis lie in complete disorder which results in a classic "Windblown appearance" showing atypia with large hyper chromatic nuclei. Particularly in arsenical Bowens disease, many vacuolated atypical cells are observed. The basement membrane is always intact. The upper dermis shows a moderate amount of chronic inflammatory infiltrate predominantly composed of lymphocytes. This is in concordance with studies by other authors.[12-14] According to Ragi et al, pigmented Bowens disease represents only 1.7% of the patients. Mechanism of pigmentation in Bowens disease is not yet known. Hypothesis state that neoplastic/tumor cells produce factors/cytokines that induce proliferation of melanocytes which eventually synthesizes melanin.[16] Also these types of pigmented lesions should be differentiated from seborrhoeic keratosis, pigmented actinic keratosis, solar lentigo, basal cell carcinoma, blue naevus, melanocytic naevus and melanoma. Singh et al and Khaitan et al conducted a study where the lesion resembled windblown appearance in histological finding. Twelve of our patients also showed windblown appearance on histology which shows nuclei with loss of polarity.[17] Topical imiquimod cream, topical 5-fluorouracil cream, cryotherapy, surgical excision, curettage, electrocautery, photodynamic therapy, and laser surgery are some of the therapeutic techniques employed. The type of treatment is determined by the tumor size, location, thickness, number of lesions, patient age, immunological condition, and comorbidities, among other variables. Thorsten et al compared the efficacy of different treatment options. He also stated that treatment should be guided by efficacy, location and availability of treatment options. Sirka et al in a study also highlighted various treatment options and patients responded well to imiquimod topical cream and surgical excision. Palaniappan et al discussed various treatment options but also pointed out that since Bowens disease most commonly affects elderly patients and hence noninvasive treatment options are preferred.

CONCLUSION

The correct identification helps in appropriate diagnosis and treatment. The differentials of inflammatory pathology should be ruled out and a biopsy diagnosis of this premalignant lesion should be given early as possible. Pigmented Bowens disease can be considered as a differential diagnosis for any long-standing pigmented skin lesion.

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