

Case Report

Hypopyon sign: a half full or half empty scenario

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ABSTRACT

The term "half-half blister" or the "hypopyon sign" refers to small vesicles that evolve into pustules, with the pus typically concentrating in the lower half of the vesicle. There is typically a transverse fluid level with purulent material at the bottom. This sign is usually not exclusive to a particular dermatological condition as it is seen in cases of subcorneal pustular dermatosis (Sneddon-Wilkinson disease), pyodermas and secondary infected vesicobullous disorders (such as pemphigus, bullous pemphigoid, and linear IgA dermatosis).

Keywords: Hypopyon sign, Pemphigus foliaceus, Subcorneal pustular dermatosis, Sneddon-Wilkinson disease, Pemphigus vulgaris, Direct immunofluorescence test

INTRODUCTION

Hypopyon sign is a clinical hallmark feature seen in several vesiculobullous disorders as well as in pyoderma infections.¹ It is described by the presence of numerous discrete vesicles which are small in size and which are either flaccid or tense in nature, The lesions are initially clear later turning turbid with the formation of pus at the end stage. These pus-filled vesicles are best appreciated in patients in an upright position.² It is important to remember that this sign may not be specific to a particular disease but can be seen in several disorders as a result of the ongoing inflammation.

CASE REPORT

A 46-year-old male visited our department with a four-month history of multiple fluid filled lesions along with erythematous crusted lesions present all over the body with aggravation of lesions in the last two weeks. Initially, the lesions started as multiple, small fluid filled

lesions over the right arm, progressing over the next few days to involve the face, neck, chest and trunk (Figure 1).

The lesions were associated with mild itching. The patient complained of spontaneous rupture of the fluid filled lesions resulting in painful raw areas. The patient reported no other complaints such as fever, trauma, photosensitivity, drug intake or family history of similar lesions. On physical examination, vital signs were within normal range and systemic examination was normal. Cutaneous examination revealed generalised erythema with multiple, well defined, erythematous to hyperpigmented annular plaques over the face, bilateral upper limbs, trunk, bilateral thighs and gluteal region. Along with this, the patient had multiple flaccid bullae and pustules demonstrating the hypopyon sign (Figure 2).

There were multiple areas of denuded skin involving majority of the skin surface area. Scalp showed areas of erythema with scaling. Palms, soles and mucosa were found to be normal. Nikolsky's sign was positive.

Investigations like complete blood count, liver function test, renal function test and serum calcium were done and found to be normal.



Figure 1: Clinical images of patient showing multiple fluid filled lesions along with erythematous crusted lesions over the face, neck; A) upper chest and B) upper back.

Tzanck smear had no significant findings. Histopathological examination showed a subcorneal pustule consisting of neutrophils along with occasional acantholytic cells. In addition, basal cell degeneration and neutrophilic spongiosis was noted (Figure 3). The patient was started on Injection Cefotaxim 1gm along with Injection dexamethasone 4mg intravenously twice a day for a duration of 7 days and steroid was tapered gradually depending on the patients response. Patient was also on T. Azathioprine 50 mg thrice a day but response was poor. Patient was then started on Injection Rituximab 1gm in 500ml of normal saline intravenously two weeks apart and the patient responded adequately with clearance of lesions.



Figure 2: A, B) Yellow arrows demonstrating the hypopyon sign where there is settlement of pus in the lower part of the bullae.

The dermis showed perivascular mononuclear infiltrate and the findings were consistent with subcorneal pustular dermatosis as well as pemphigus foliaceus. Subsequently, direct immunofluorescence was done which showed IgG 2+ (positive) and C3 trace (positive) in the intercellular

location of the epidermis while IgA was negative. All the above-mentioned findings were suggestive of the diagnosis of pemphigus foliaceus.

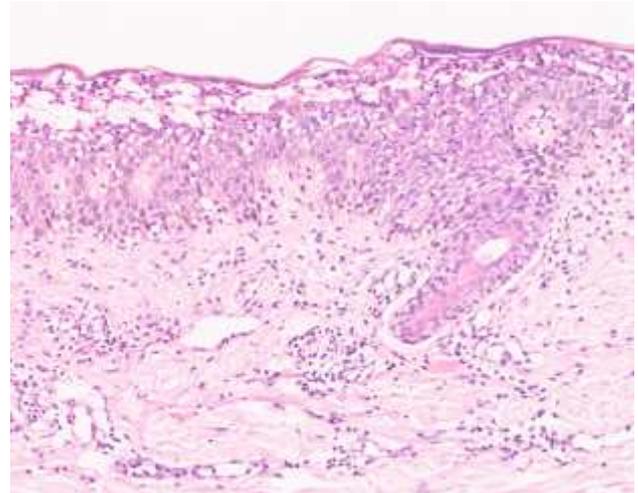


Figure 3: High power view (40x magnification) of a haematoxylin and eosin-stained section of the skin focusing a subcorneal pustule consisting of neutrophils along with occasional acantholytic cells. In addition, basal cell degeneration and neutrophilic spongiosis was noted. The dermis shows perivascular mononuclear infiltrate.

DISCUSSION

The term "hypopyon sign" refers to the occurrence of small, distinct, flaccid vesicles that quickly transform into pustules, typically gathering in the lower part of the pustule.³ These pustules develop on erythematous or clinically normal skin and are located in dependent areas of the body. It is best appreciated in an upright position where we can observe a transverse level of pus filled material settling at the bottom owing to the gravity.⁴ On histopathology, the perivascular infiltration is largely composed of neutrophils. The pus from these lesions usually do not demonstrate organism unless a secondary infection sets in. The hypopyon sign is fairly positive in majority of the cases of subcorneal pustular dermatosis (Sneddon-Wilkinson disease) and is also elicited in numerous vesiculobullous disorders like pemphigus foliaceus, pemphigus vulgaris, paraneoplastic pemphigus, IgA pemphigus and also in acute generalized erythematous pustulosis.^{5,6} Due to the miniscule size of lesions in case of acute generalized erythematous pustulosis, dermoscope can be used for better visualization.⁷ A case report has been put forth demonstrating the presence of Hypopyon sign in an atopic child with Varicella infection.⁸ It is also seen in cases of pustular psoriasis leading for it to be a dilemma in differentiating it from subcorneal pustular dermatosis as both have nearly similar histopathological findings.⁹ Pyoderma like bullous impetigo can also elicit this sign.¹⁰ Pustules of cutaneous candidiasis with perilesional erythema can present as hypopyon sign.¹¹ The

pathogenesis of this sign however has not been explained. There is a possibility that this sign results from the marked accumulation of neutrophils, especially in an intraepidermal vesicle, which in turn settles on to the lower part of the lesion on dependent parts of the body as a result of gravitational pull. Direct immunofluorescence is the most reliable diagnostic test for all variants of pemphigus. It shows intercellular immunoglobulin G (IgG) deposition in a chicken wire/honeycomb pattern in cases of pemphigus foliaceus.¹²

CONCLUSION

Hypopyon sign aids in the clinical diagnosis of cases like subcorneal pustular dermatosis and various vesicobullous disorders like pemphigus foliaceus, pemphigus vulgaris, paraneoplastic pemphigus, and IgA pemphigus but is not limited to a particular condition. Conclusion: Identifying the clinical signs and performing the appropriate diagnosis go hand in hand in confirming the diagnosis of various subcorneal blister disorders and vesicobullous disorders as they have an overlap in symptoms and investigation findings.

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