1. Specify the abstract category (A–E) above the abstract title.

(A) Clinical Research - ***I select this one***
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2. Use the following abstract structure: Background, Methods, Results, Conclusion.
3. Word limit: **500 words**.

Temporal Association Between Trichomonas Infection and Hidradenitis Suppurativa: A Case-Control Study

Author(s):
Ruhi Kanwar[1,2], Vinod Nambudiri, MD MBA MPH EdM[1]
Institution(s):
[1]Department of Dermatology, Brigham and Women's Hospital, Boston, Massachusetts
[2]Harvard Medical School, Boston, MA, USA

Background

Hidradenitis Suppurativa (HS) is a chronic inflammatory skin disease, that occurs primarily within intertriginous areas of the body. It is characterized by painful nodules, abscesses, and sinus tracts. The pathogenesis of HS is complex and involves immune dysregulation, microbiome alterations, and chronic inflammation. There has been some prior evidence of a potential association between HS and sexually transmitted infections (STIs), that could suggest overlapping risk factors and inflammatory pathways.[1] Risk factors such as obesity and psychosocial stress, for instance, may contribute to the observed association.[2,3,4,5] Chronic inflammation, which is involved in systemic inflammatory responses, is a characteristic of both HS and certain STIs, including Trichomonas infection.[6] This study investigated the association between Trichomonas infection and HS using a case-control design.

Methods

Two case-control analyses were performed using the TriNetX (Cambridge, MA) United States network. The first analysis evaluated 223,881 patients with and without Trichomonas infection, with adjusted analysis with 1:1 propensity score matching for age at index, sex, black race,

diabetes, obesity, and nicotine dependence. Temporal trends were analyzed for the Trichomonas-to-HS cohort at 1, 3, 5, and 10 years post-infection. The case group was defined using the ICD-10 code for individuals diagnosed with Trichomonas. The control population included patients who had undergone at least one general outpatient annual physical examination and had no documented history of Trichomonas, as identified using ICD-10 codes. The second analysis assessed 221,261 HS and non-HS patients to explore the reverse association.

Results

In the primary analysis, Trichomonas infection was significantly associated with HS (OR 1.486, $p<0.0001$). The temporal analysis showed a progressively increasing risk of HS with longer intervals from Trichomonas infection: OR 1.05 ($p=0.3845$) at 1 year, OR 1.22 ($p<0.0001$) at 3 years, OR 1.28 ($p<0.0001$) at 5 years**,** and OR 1.39 ($p<0.0001$) at 10 years. In the reverse association analysis, HS was significantly associated with Trichomonas infection (OR 1.164, $p<0.0001$).

Conclusion

This study demonstrates a significant bidirectional association between Trichomonas infection and HS. There is a progressively increasing odds ratios in the temporal analysis, that suggests that Trichomonas infection may contribute to HS development. Our results aligns with the known inflammatory and immunological effects of the STI. However, the reverse association indicates the relationship is complex, and potentially influenced by shared risk factors such as sexual behaviors, access to healthcare, hygiene, and stress. A reciprocal pathophysiological mechanism like chronic inflammation or immune dysregulation may exist. Limitations include the observational nature of the study and the inability to establish causality. These findings underscore the need for further longitudinal and mechanistic studies on the directionality and shared pathophysiology of the association.

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