

Background

Dermatophyte infections involving the skin, hair, or nails affect an estimated 25% of the world's population,¹ and accounted for 51 million outpatient visits over a ten-year period (1995-2004) in the United States alone.² Dermatophytosis is routinely managed by dermatologists, though given the diversity of clinical presentations, is sometimes misdiagnosed, which can result in inappropriate therapy, worsening of symptoms, and even result in additional skin and soft tissue infections.

Methods

An interactive survey of board-certified dermatologists was conducted at the 2016 Orlando Dermatology Aesthetic & Clinical Conference, during a seminar on superficial mycotic infections. The structure of the survey entailed reviewing a presentation of a clinical image followed by responding to a simple yes or no question: is this a fungal infection? Data was gathered anonymously via an audience response system and data tabulated using Microsoft excel.

Results

- A total of 13 cases were presented. The results are summarized in Figure 1, and the raw data of the survey is presented in Table 1.
- Although the majority of the cases (8/13) were appropriately categorized by 50+% of the audience, this percentage decreased as accuracy of categorization increased.
- In only 4 of the 13 cases did audience members accurately categorize the cases > 75% accuracy.
- There was only one case for which 90+% of the audience appropriately categorized the case.

Table 1. Participant responses to clinical images

Case	Diagnosis	n (%)	
		Yes	No
1	Secondary Syphilis	16 (94.1)	1 (5.9)
2	Tinea Corporis	7 (46.7)	8 (53.3)
3	Erosio Interdigitalis Blastomycetica	12 (70.6)	5 (29.4)
4	Tinea Corporis	10 (52.6)	9 (47.4)
5	Tinea Faciei	10 (58.8)	7 (41.2)
6	Pityriasis Rosea	13 (76.5)	4 (23.5)
7	Tinea Corporis	26 (86.7)	4 (13.3)
8	Majocchi's Granuloma	3 (13.0)	20 (87.0)
9	Tinea Versicolor	18 (72.0)	7 (28.0)
10	Tinea Pedis	22 (78.6)	6 (21.4)
11	Erythema Annulare Centrifugum	10 (33.3)	20 (66.7)
12	Woringer-Kolopp disease (Pagetoid Reticulosis)	12 (46.2)	14 (53.8)
13	Gram negative Toe Web Infection	2 (6.1)	31 (93.9)

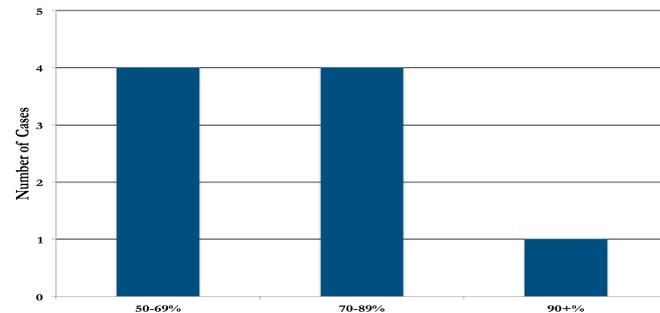


Figure 1. Number of cases where participants accurately categorized the pathology as either a dermatophytosis or not: organized in percent ranges.

Conclusion

The study limitations included a lack of a measurable response rate and a small sample size, which prevent significant conclusions from being made. However, the results do emphasize the protean clinical nature of cutaneous dermatomycoses and the ease with which one may miss the correct diagnosis. Secondary syphilis, annular psoriasis, and pityriasis rosea are among just a few inflammatory skin diseases that can mimic dermatophyte infections as illustrated herein. As such, these data underscore the importance of continued medical education on dermatophyte infections as well as proper education and training on bedside diagnostic techniques such as potassium hydroxide during residency and beyond.

References

1. Havlicekova B, Czaika VA, Friedrich M. Epidemiological trends in skin mycoses worldwide. *Mycoses*. 2008 Sep; 51 Suppl 4:2-15.
2. Pinnackal AA, Halpern EF, Watson AJ. Cutaneous fungal infections in the United States: Analysis of the National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS), 1995-2004. *Int J Dermatol*. 2009 Jul;48(7):704-12.