

Fungal agents of cutaneous and subcutaneous infections

5 years of experience

P036

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Objective

Subcutaneous fungal infections often develop following a penetrating wound through the skin. The etiological agents are usually soil fungi or of plant material decomposers. Mycetoma and chromoblastomycosis are common in subtropical and tropical regions of the world but rare in Europe where subcutaneous infections have a different epidemiology. This work aims to evaluate the epidemiology of cutaneous and subcutaneous infections diagnosed in our laboratory during 5 years.

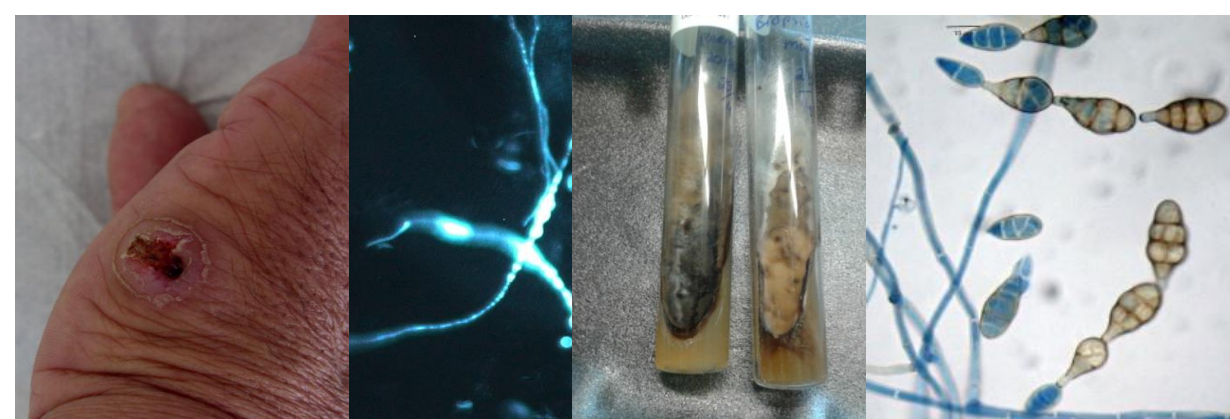
Methods

A retrospective analysis of cases of cutaneous and/or subcutaneous infections received for mycological examination at the Portuguese National Reference Laboratory between 2013 and 2017. All cases with positive culture from abscess drainage, skin biopsy, or subcutaneous tissue samples without dissemination or deep organ involvement were included. Dimorphic fungi were excluded. Collected data included clinical presentation, underlying disease, age, gender, and place of residence. Isolates were identified according to their macro and microscopic features. Total genomic DNA was extracted from purified colonies and the internal transcribed spacer (ITS) region of ribosomal DNA (rDNA) of these isolates were amplified using the primer set ITS1 and ITS4.

Results

Fifteen cases of cutaneous and/or subcutaneous infections were diagnosed and analyzed (gender distribution: 8 male, 7 female). The patients' average age was 62 years old and the median age was 69 years old. An underlying immunodepression was present in 40% of the cases (N=6); In 53% of the cases (N=8) the patients had no underlying disease and 7% (N=1) had chronic hepatic disease. Five patients had story of skin injury. Clinical manifestations of the cutaneous and/or subcutaneous lesions were: nodules, abscesses, or infiltrated plaques, observed in distal body areas.

Eight different fungal genera were identified from the cultures obtained: *Alternaria* (N=2), *Aspergillus* (N=1), *Fusarium* (N=1), *Saksae nae* (N=), *Scedosporium* (N=2), *Schizophillum* (N=1), *Trichophyton* (N=2), *Thichosporon* (N=1)



Clinical case published by Brás S et al. 2016. Cutaneous lesion from the left hand. Direct examination with Calcofluor white®. Culture of clinical samples hand and leg biopsy on SDA. Microscopy of the culture of *Alternaria alternata* isolated from cutaneous lesion.

Patient	Sex Age (years)	Injury story	Underlying risk factors	Lesion type	Body site	Histology	Direct microscopic examination	Culture	Treatment	Outcome
1	M/69		Hepatic transplant/ immunosuppressive therapy	cutaneous nodules	hand and leg	hyphae spores/ inflammatory infiltration	septate hyphae	<i>Alternaria infectoria/ Alternaria alternata</i>	Lesion excision /itraconazol 100 mg/day	recovery
2	M/10	skin trauma	none	subcutaneous	Leg	NR	NR	<i>Schizophillum commune</i>	Fluconazol 40 mg/day	recovery
3	M/29		none	subcutaneous nodules	harm	NR	Negative	<i>Trichophyton verrucosum</i>	NR	NR
4	F/61		Heart transplant/ immunosuppression	subcutaneous	leg	NR	hyphae	<i>Alternaria infectoria</i>	NR	NR
5	M/83		none	subcutaneous	gluteus	NR	yeast like cells	<i>Trichosporon montevidense</i>	NR	NR
6	F/61		none	subcutaneous	NR	hyphae	not done	<i>Alternaria infectoria</i>		
7	M/88		Neoplastic immunosuppression	subcutaneous abscess		NR	hyphae	<i>Scedopsorium apiospermum</i> (complex)	NR	NR
8	F/76	skin trauma	none	subcutaneous	hand			<i>Alternaria alternata</i>		
9	F/78		immunosuppression	subcutaneous	leg	NR	NR	<i>Alternaria infectoria</i>	Itraconazol 100 mg/day	NR
10	M/40		chronic liver disease/ diabetes mellitus	subcutaneous	leg	Negative	NR	<i>Aspergillus fumigatus</i>	Itraconazol 100 mg/day	partial recovery
11	M/74		IS therapy	subcutaneous	leg	NR	NR	<i>Scedosporium apiospermum</i> (complex)	NR	NR
12	F/80	spider bite	none	cutaneous necrotic lesion	harm	NR	NR	<i>Saksae nae vasiformis</i>	NR	NR
13	M/63	skin trauma	none	subcutaneous	hand	NR	Negative	Negative (Positive PCR for <i>T. rubrum</i>)	itraconazol 200 mg/day	NR
14	F/78		IS therapy	subcutaneous	leg	NR	NR	<i>Alternaria infectoria</i>	itraconazol 200 mg/day	NR
15	F/48	skin trauma	none	subcutaneous	hand	NR	NR	<i>Fusarium solani</i>	NR	NR

NR- not reported

Conclusion Immunossuppressive drug therapy and advanced age are two major factors associated to the risk increase of acquiring subcutaneous fungal infections. There is also an emergence of new fungal species implicated as aetiological agents.. Thus, infectious diseases physicians should suspect of fungal infection when observing cutaneous and/or subcutaneous wounds.