Imported mycoses: neglected and unrecognized: french data

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Mycology is the « parent pauvre » of infectiology

- Outside endemic zones physicians are not well informed about imported mycoses, delays in the diagnosis and treatment can be due to this lack of knowledge
- But also in some endemic areas mycoses are underecognized, especially in tropical Africa where biologists are rare.
- Systemic mycoses are difficult to diagnose and require techniques not always possible to make use of in third-world countries (bronchoalveolar lavages , mycologic cultures, biopsies, serologies…)
- Some examples can illustrate this facts: in Haïti, no histoplasmosis were reported but cases were diagnosed in HIV haïtian patients in French Guiana or France

Mycology in France: the role of Pasteur institute

- Mycoses, especially tropical mycoses are not studied in detail during medical studies in France
- For those who want to increase their knowledge in mycology the mycology course of institut Pasteur (IP) is essential.
- The department of mycology of the IP is very old and has worked on tropical mycoses for decades
- In 2002 was created the « centre national de référence des mycoses et antifongiques ».
- Fungemia, disseminated aspergillosis, cryptococcosis and imported mycoses are declared to this national center

A French specificity : overseas territories

The example of french Guiana

83.846 km²

230.000 inhabitants

80.000 illegal migrants

38 new AIDS cases per 100.000 inhabitants/year

1 % seropositive in pregnant women,

Endemic for histoplasmosis

Prevalence superior than the one observed in Caribbean islands

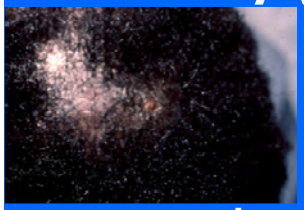
Imported mycoses involve different type of populations

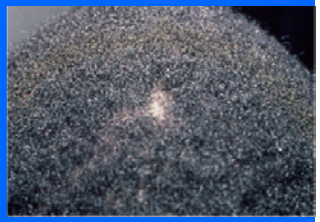
- Travellers : Tinea corporis, histoplasmosis, coccidioidomycosis
- Expatriates : tinea corporis, histoplasmosis, African histoplasmosis, coccidioidomycosis, paracoccidioidomycosis
- Migrants : tinea corporis, tinea capitis, scytalidiosis, mycetoma, histoplasmosis, African histoplasmosis, paracoccidioidomycosis
- Immunosuppressed and transplant recipient: histoplasmosis, penicilliosis, phaehohyphomycosis
- Military medicine, laboratory-acquired infections

Superficial imported mycoses: Tinea capitis, scytalidiosis

- « Changing face of tinea capitis in Europe » Curr Opin Infect Dis 2009;22:115-8
- Modification of the epidemiology of tinea capitis in Europe was observed last decades, predominent species changed: for example in France now *Microposrum canis* is rare
- Predominantly responsable species varies with countries: *Trichophyton tonsurans* accounts for 50-90% of cases in UK, *M canis* is commonest in central and southern Europe, *Trichopyton violaceum* in Greece and Belgium
- In France now tinea capitis is mostly an imported infection

Actual epidemiology of tinea capitis in France





- Tinea capitis is mainly due to anthropophilic agents: *Trichophyton soudanense* and *Microsporum langeronii*, african species, *T violaceum* is less frequent. Intrafamiliar contamination is important
- It is necessary to screen family members when a case is diagnosed, even in the absence of clinical lesion
- Tinea capitis is not exceptional in young adult african women
- *Trichophyton tonsurans* is an emerging species (children from Carribean, especially Haïti)

Scytalidiosis or pseudodermatophytosis

- Frequent superficial mycosis in migrants
- Parisian serie: 332 patients: west Indies 34%

  Africa 29,5%, more men than women, adults with predominance in the 36-55 group, feet involved in 90,6%, skin and nail lesions: 65,3% & 34,7%

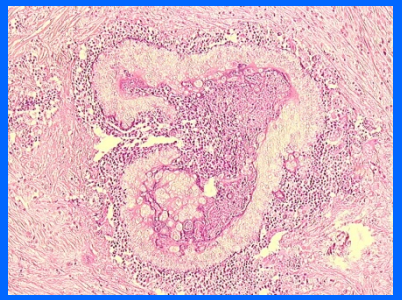
Association with dermatophytes: 9%

Data from the « National Reference Centre for Mycosis and Antifungals » for subcutaneous and systemic tropical mycosis

- From to 2002 to 2008, 229 cases were declared by 75 different centers
- 67 of the 192 cases of histoplasmosis were observed in the overseas french territories (French Guiana, Guadeloupe, Martinique, New Caledonia)
- In 2008 were declared: 2 *H capsulatum* var *duboisii* cases, 34 *H capsulatum* var *capsulatum* cases (16 in overseas departments), 1 *P marneffei* infection, 4 mycetoma cases, 1 chromomycosis, 1 paracoccidioidomycosis (French Guiana)

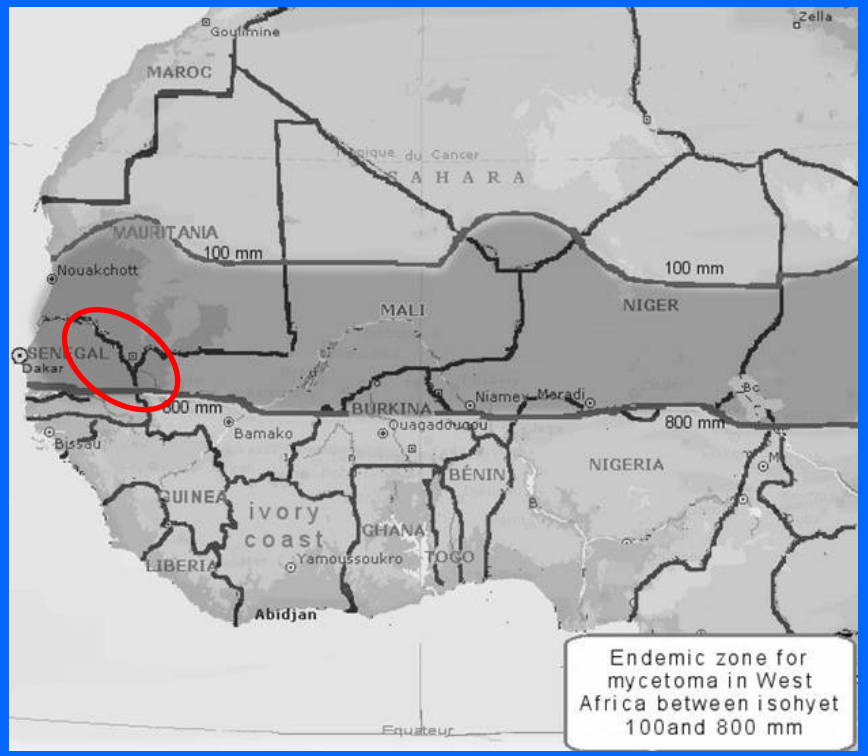
Mycetoma is the most frequent imported subcutaneous mycosis in France



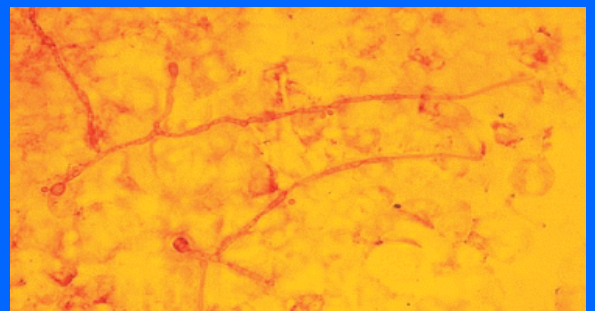




Most of the patients with mycetoma come from sahelian countries

- The majority of sub-saharian migrants in France come from an area situated in the african mycetoma belt
- Management of mycetoma is difficult, eumycetoma and actinomycetoma must be distinguished
- Medical treatment of eumycetoma is disappointing



Imported sporotrichosis: exceptionnal, rare autochtonous cases are described in France

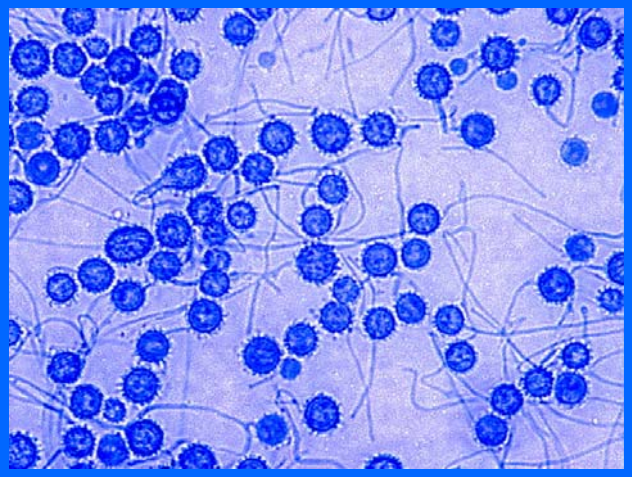


Imported chromoblastomycosis

- Imported chromoblastomycosis is also exceptionnal
- Here you have the example of a chromoblastomycosis observed 7 years after trasnplantation in a Tunisian migrant
- The other case was also observed in Paris in a patient from Reunion island

H capsulatum var *capsulatum* histoplasmosis is the most frequent imported systemic mycose in France

- From 1970 to 1994 94 cases of H capsulatum infections were evaluated by the french study group on histoplasmosis, 41 were HIV negative and 51 were HIV positive, 26 of these were diagnosed the last two years of the study, this shows the growing importance of histoplasmosis in immunosuppresed



H capsulatum histoplasmosis in non HIV infected patients

- Upon the 43 cases in non HIV infected patients, 30 had no obvious immunological predispositions but 6 were alcoholics, 3 had diabetes mellitus, 2 had solid tumors, HTLV1 infection 1.
- 38 were caucasian, 5 black from Africa or Caribean
- Contamination occured in south America 19, subsaharian Africa 15, Caribean 4, other 5
- Duration of stay was 21 months, apparition symptoms 16
- Only 2 were primo infections, localisations were lungs 24, mucocutaneous 5, ORL 15, digestive 5, hepatic 5, splenic 6, adrenal 1.
- Biopsy and serology were the most contributive exams

Histoplasmosis associated with AIDS (1997-2006) metropolitan France

65 patients, median age: 40 (18-75)

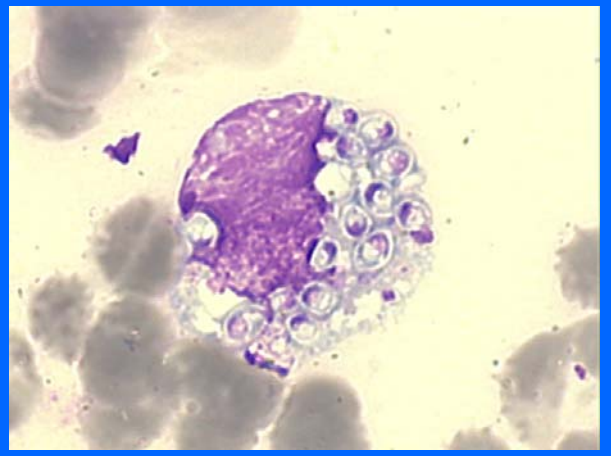
Men: 58%, originating or with travel in endemic areas: Africa: 58%,French Guiana: 28%

Histoplasmosis revealing HIV infection in 41%, CD4 : 12/µl (1-392)

66% severe cases, fever (83%), lymph glands (62%), cutaneous (45%), hepatosplenomegaly (44%)

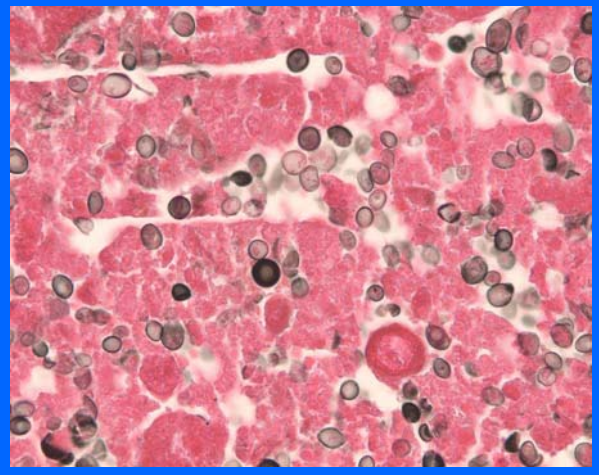
Direct examination (22%), culture (8%), both (70%), positive serology (10%)

Amphotericin B (76%)



African histoplasmosis
french data 1968-1994

- 22 cases M/W 9,5
- 34 years (8-62)
- Caucasian: 11, African: 10
- Most infected in Mali & RDC
- Stay in Africa: 12 y (2-24)
- 1st symptoms in France: 1 months (1-26 months)
- Fever: 3, cough: 4. localisations: lymph glands: 13, cutaneous: 8, pulmonary: 7, osseous: 5…

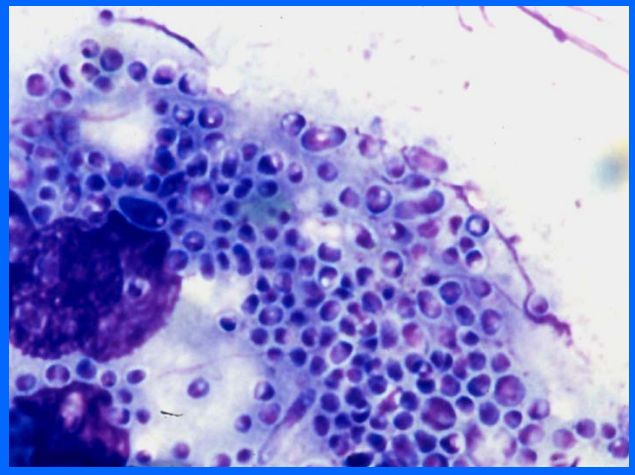


Histoplasmosis diagnosed in the department of parasitology-mycology (2001-2008) Saint-Antoine Hospital, Paris

Patient N°	Sex	Age (years)	Origin / Stay in endemic area	Stay in France (years)	Immuno deficiency	MainSymptoms	Diagnosis/ *H. capsulatum var.*.	Treatment	Outcome Survival
1	M	39	Mali	15	HIV+ CD_4 : 5	Febrile pancytopenia, mediastinal ADP	DE of SBM puncture *capsulatum*	amphotericine B itraconazole	Favorable > 16 months then lost of view
2	F	23	Ivory Cost	5	HIV+ CD_4 : 39	Febrile infiltrative pneumonia	DE of BAL *capsulatum*	amphotericine B itraconazole	Favorable > 16 months then lost of view
3	M	49	Cameroon	ME	HIV+ CD_4 : 6	Febrile pancytopenia, disseminated papules	DE of SBM puncture *capsulatum*	amphotericine B itraconazole	Favorable > 18 months
4	M	29	Cameroon	2	HIV+ CD_4 : 3	Febrile infiltrative pneumonia, ADP	lymph node puncture *capsulatum*	itraconazole	Favorable > 5 years
5	F	23	French Guiana	10	HIV+ CD_4 : 3	Febrile cachexia, mediastinal ADP	DE of BAL *capsulatum*	amphotericine B itraconazole	Died after 4 months
6	M	41	Haiti	20	HIV+ CD_4 : 68	Febrile pancytopenia, ADP	lymph node puncture *capsulatum*	itraconazole	Favorable 8 years
7	M	46	Colombia	2 months	HIV+ CD_4 : 52	Febrile infiltrative pneumonia (coccidioidomycosis)	*Blood culture capsulatum*	itraconazole	Lost of view
8	M	42	France / -	-	IST for liver transplant	Febrile pancytopenia, subcutaneous abscess	Abscess puncture	itraconazole	Favorable 6 years
9	M	45	France / Cave visit in Sri Lanka	-	none	Pulmonary nodule	DE ofPulmonary nodule biopsy *capsulatum*	itraconazole	Favorable 4.5 years
10	F	69	France / Long stays in Honduras	-	none	Acute respiratory distress	DE of BAL *capsulatum*	Liposomal amphotericine B itraconazole	Favorable 10 month
11	M	50	Mali		none	Acute intestinal obstruction	*Anatomopathologic examination Mesenteric ADP duboisii*	itraconazole	Favorable 1 year then lost of view

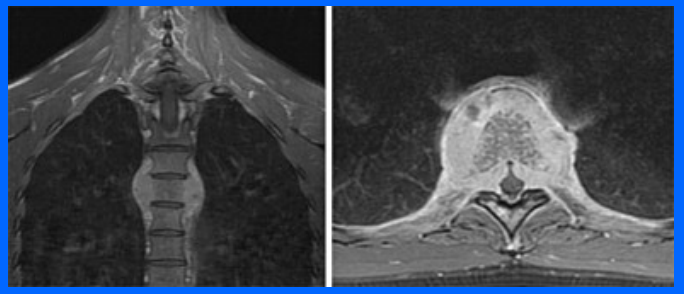
Penicilliosis due to *P marneffei*

- Endemic mycosis in SE Asia (Thailand, Vietnam, China…), only observed in immunodeprimed patients especially HIV-infected, clinicaly similar to disseminated histoplasmosis
- Rarely observed in Europe, here is a laboratory contracted case observed in Paris



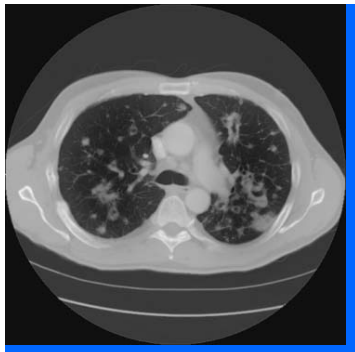
Coccidioidomycosis

- Coccidioidomycosis is an emerging imported mycose in western Europe.
- From 1994 to 2009, 11 patients were published in France
- All were french except an Colombian archeologist
- Contamination occured in USA (9), Mexico (1), one was a transplant recipient



Diagnosis must be evocated in travellers with subacute pneumonia returning fom California, Nevada or Arizona

- Main presentation was subacute pneumonia, 2 were disseminated, 2 asymptomatic
- 2 patients were HIV infected
- Diagnosis was made with direct examination and serology
- 9 patients recovered with treatment, one HIV died

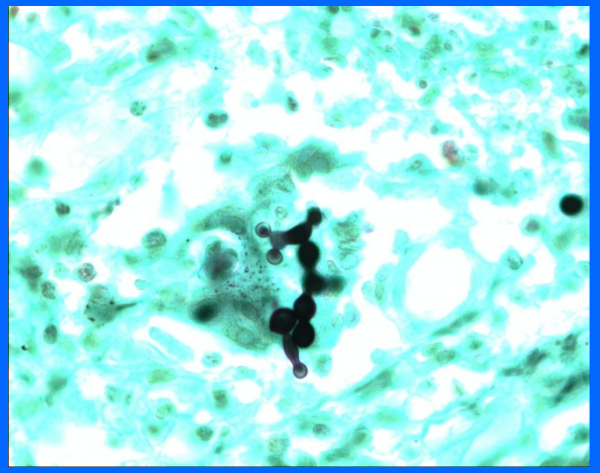


Paracoccidioidomycosis

- Most frequent systemic endemic mycose in south America, Brazil +++
- The majority of european imported cases were observed in Spain: 13 published observations (1990-2008)
- 6 chronic cutaneous diseases, 7 systematic symptoms, long latency (18 m-50 y)
- Painful oral ulcer, respiratory symptoms, low grade fever frequent misdiagnosis (carcinoma, sarcoïdosis..)
- Sporadic cases were described in other european countries (Germany, Netherland, Austria, UK)

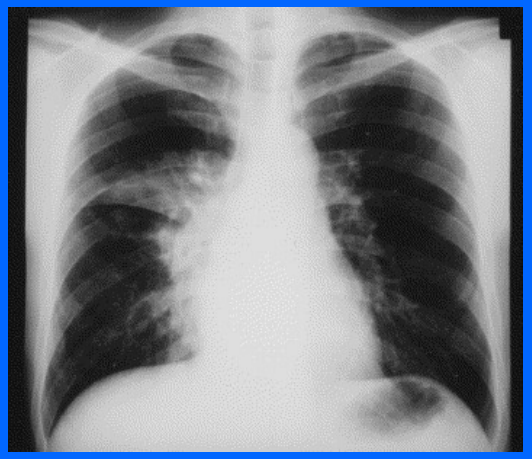
First imported cases of paracoccidioidomycosis in France

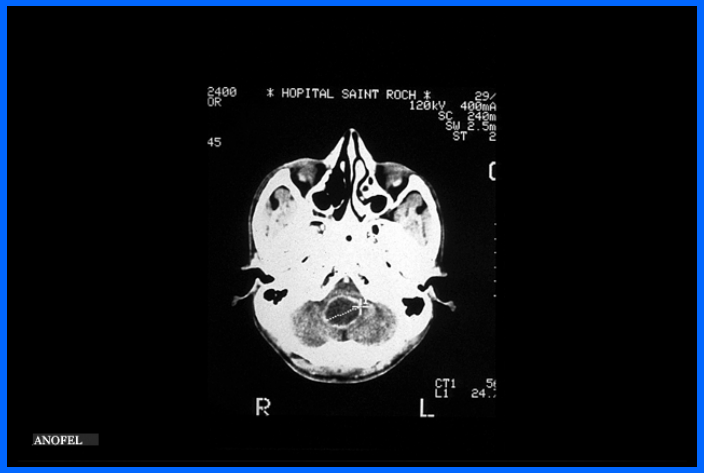
- A case of brain abcess in a 70 years old frenchman, diagnosis was established by histological examination. He lived several years in Paraguay
- Acute and isolated glottic paracoccidioidomycosis in a frenchman who worked in Venezuela in offshore oil rig



Imported Blastomycosis (*B dermatitidis*) is exceptionnal in Europe

- This radiography represent an interesting case of a french traveller who contacted blastomycosis during a short stay in Canada
- This second case was a cerebral infection observed in a Tunisian migrant in France, blastomycosis is also an african mycosis





THANK YOU !