

Les infections cutanées

Staphylococcus aureus

VS

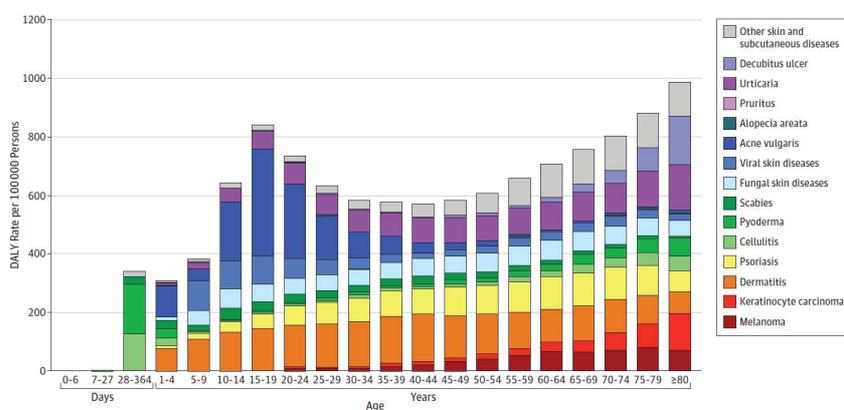
Streptococcus spp.

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CHI Fréjus Saint Raphaël

« Fardeau » des infections cutanées (Disability Adjusted Life Years)

DALY est un index permettant d'évaluer le « fardeau » des pathologies humaines, l'impétigo fait partie des 50 premières pathologies

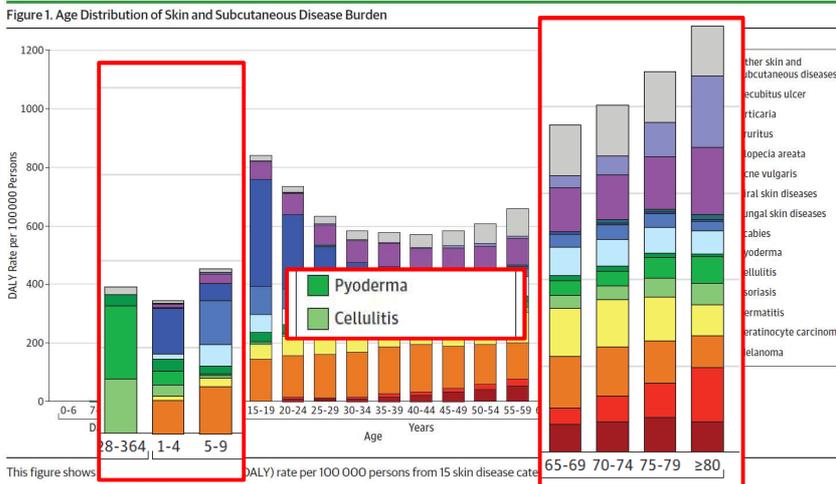
Figure 1. Age Distribution of Skin and Subcutaneous Disease Burden



This figure shows disability-adjusted life year (DALY) rate per 100 000 persons from 15 skin disease categories throughout the human life span.

« Fardeau » des infections cutanées (Disability Adjusted Life Years)

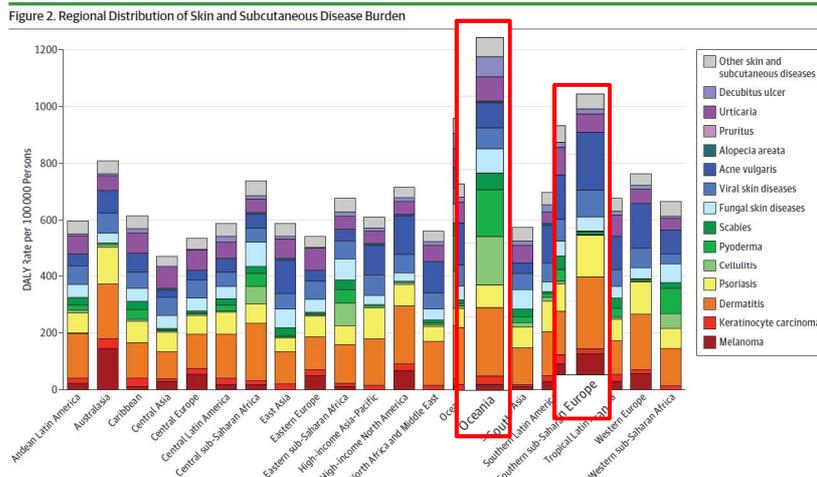
Le « fardeau » des infections cutanées bactériennes concerne principalement la petite enfance et la personne de plus de 65 ans



Chante Karimkhani et al. JAMA Dermatology May 2017 Volume 153, Number 5 406

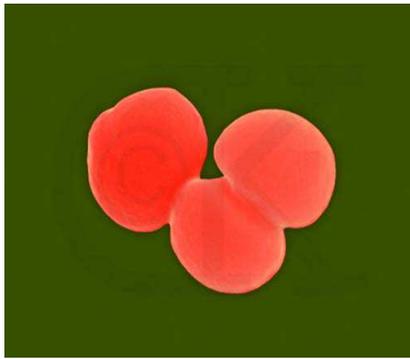
Fardeau des infections cutanées (Disability Adjusted Life Years)

La prévalence et l'impact des infections cutanées sont plus importants en zone inter-tropicale, notamment en Océanie



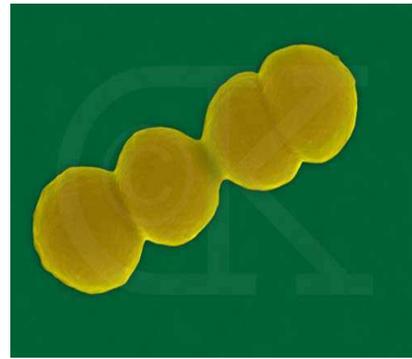
Chante Karimkhani et al. JAMA Dermatology May 2017 Volume 153, Number 5 406

Les infections cutanées *Staphylococcus aureus* vs *Streptococcus* spp.



TSST-1, entérotoxines (SEA, SEB...),
exfoliatines A et B
Toxine de Panton et Valentine

VS



Streptococcal Pyrogenic Exotoxine (A-J)
Streptococcal Mitogenic Exotoxine Z

Les infections cutanées *Staphylococcus aureus* vs *Streptococcus* spp.

DOI: 10.1111/j.1468-5983.2009.03352.x

JEADV

ORIGINAL ARTICLE

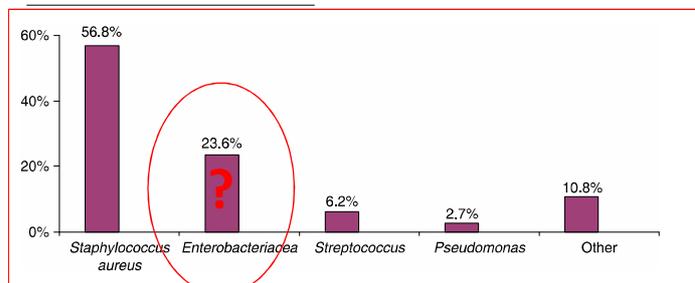
Superficial community-acquired skin infections: prevalence of bacteria and antibiotic susceptibility in France

G Lorette,^{1*} Ph Beaulieu,¹ FA Albert,² A Mahmoudi,¹ V Jarrier^{1†}

Table 1 Frequency and nature of primary and secondary skin infections in EPIDERM 2 study

Type of infection	Number (%)
Primary infections	238 (61.3)
Folliculitis	73
Impetigo	65
Furuncle	53
Whitlow	10
Ecthyma	8
Impetigo	7
Data missing	22
Secondary infections	150 (38.7)

Figure 1 Distribution of the bacteria.



Fiabilité des études clinico-microbiologiques ?

Les infections cutanées

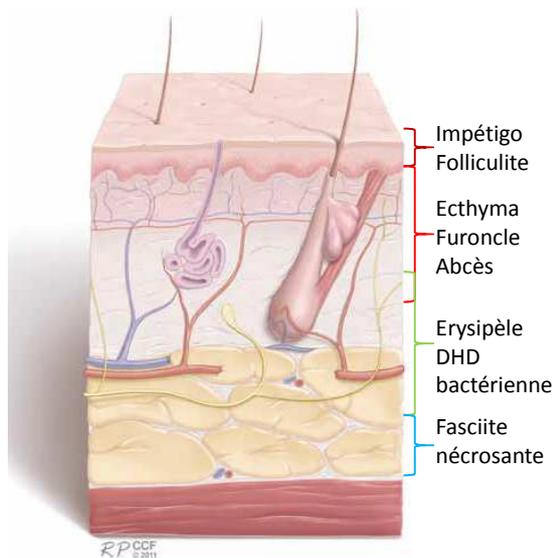
Staphylococcus aureus vs *Streptococcus* spp.

Confrontation
clinique /
microbiologie

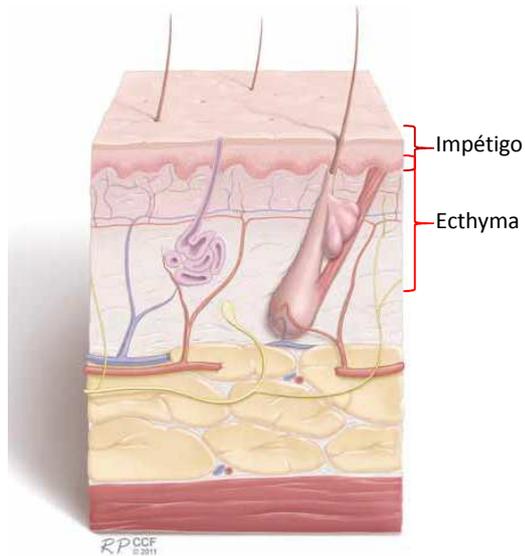


Les infections cutanées

Staphylococcus aureus vs *Streptococcus* spp.

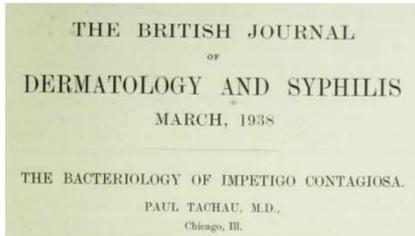


Les infections cutanées *Staphylococcus aureus* vs *Streptococcus* spp.



Impétigo

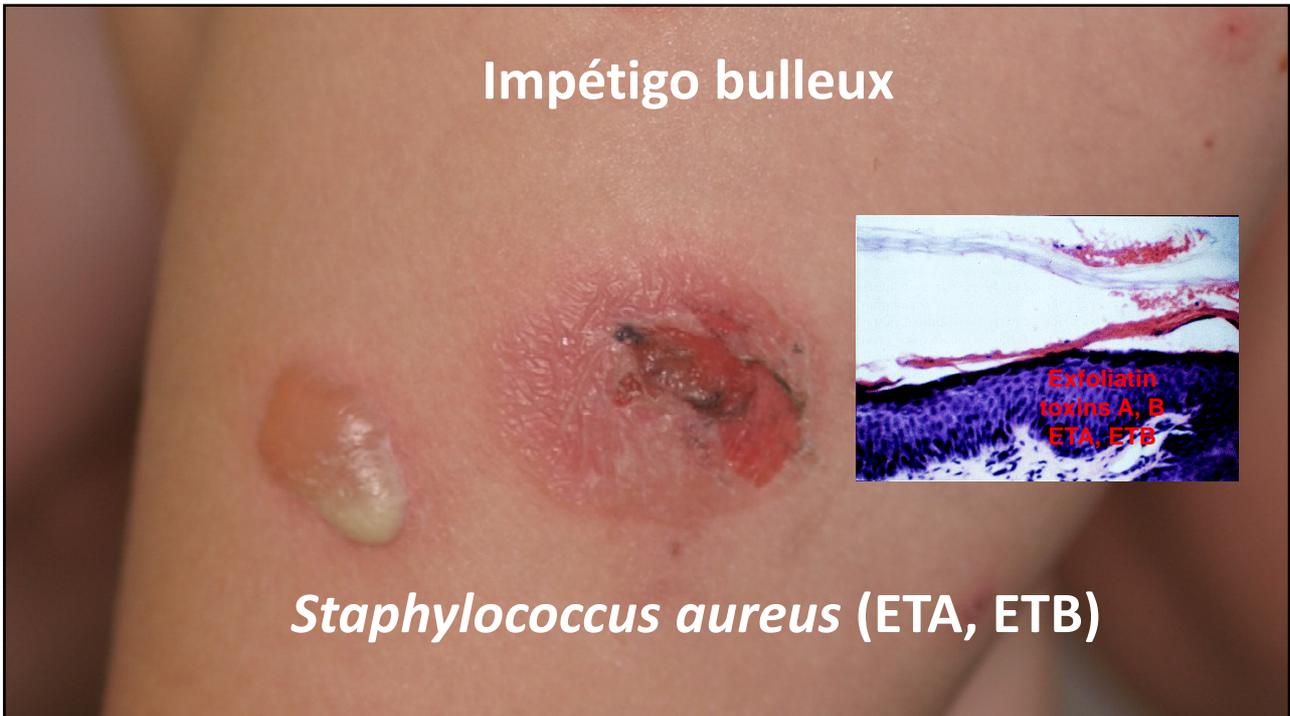
Staphylococcus aureus vs *Streptococcus* spp.



There are distinct features in the clinical aspect of both impetigo contagiosa streptogenes and staphylogenes allowing an exact differentiation at first sight in most of the cases.

Differentiation of Impetigo Contagiosa Streptogenes, Staphylogenes and Pemphig

	Streptococcal type.	Staphylococcal type.
1. Primary lesion	Red spot with small vesicle in centre	Vesicle on normal skin, seldom
2. Blisters or blebs	Size of a pin's point; hardly to be seen because of bursting very soon	<u>Rapid development of blebs</u> 1-3 cm. in diameter. Serous content; gets purulent after a few days
3. Surrounding areola	Broad red areola	Red areola often missed. When present, impetigo contagiosa
4. Erosions	Up to 2 cm. in diameter	Up to 5 cm. in size. Shreds of epithelium at the periphery
5. Circinate or polycyclic character	Unusual	Very common
6. Crusts	Thick, honey-like, yellowish or hemorrhagic "stuck-on"	Thin, varnish-like, yellow, greyish or brownish
7. Contagiousness	Less marked	<u>Very important.</u> Epidemic
8. Prognosis, course	Benign. Is to be cured in a few days by correct treatment	
9. Residues	Red or bluish spots, disappearing after 3-5 weeks	Pigmented spots not uncommon.



Staphylococcus aureus (ETA, ETB)



Impétigo: pays du nord

3^e dermatose la plus fréquente chez l'enfant, incidence annuelle 10-30 / 1000 (âge < 18ans)

Staphylococcus aureus (70-90%) >>> *Streptococcus pyogenes*

Epidémique, saison estivale

Les complications post impétigos streptococciques sont devenues exceptionnelles dans les pays développés (Glomérulonéphrites post Strep : 0.13 - 6/100 000/an)

Carapetis JR et al. Lancet Infect Dis. 2005;5(11):685-94.
Shallcross LJ et al. Emerg Infect Dis. 2013;19(10):1646-8.
Koning S et al. Br J Dermatol. 2006;154(2):239-43.
Ilyas M, Tolaymat A. Pediatr Nephrol. 2008 Jul;23(7):1101-6.

Salah LA, Faergemann J. Acta Derm Venereol. 2015 May;95(5):532-5.
Rørtveit S et al. Scand J Infect Dis. 2014 Dec;46(12):832-7.
Rørtveit S, Rørtveit G. Br J Dermatol. 2007 Jul;157(1):100-5.

Impétigo: pays du sud

Pathologie de l'enfant

Prévalence 12% chez l'enfant (7% Afrique => 40% Océanie)

Localisation prédominant aux membres inférieurs

S. aureus et *Streptococcus pyogenes* isolés dans respectivement 64 et 74 % des cas

Glomérulonéphrites post Strep : 23/100 000/an

Bowen AC et al. PLoS One. 2015 ;10(8):e0136789.
Carapetis JR et al. Lancet Infect Dis. 2005;5(11):685-94

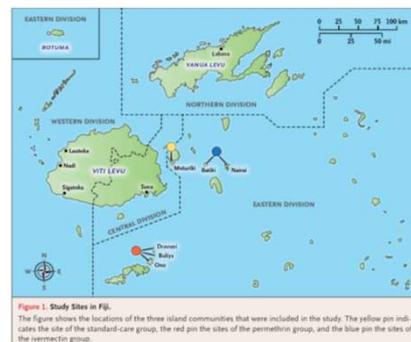
Gale et impétigo



Mass Drug Administration for Scabies Control in a Population with Endemic Disease

Lucia Romani, M.Soc.Dev., Margot J. Whitfield, M.B., B.S., Josefa Koronivuetu, M.B., B.S., Mike Kama, M.B., B.S., Handan Wand, Ph.D., Lisi Tikoduvaui, M.B., B.S., Meclusefa Tuicakau, M.B., B.S., Aminiasi Koroi, B.A., Ross Andrews, Ph.D., John M. Kaldor, Ph.D., and Andrew C. Steer, Ph.D.

Diminution de la prévalence de l'impétigo entre 32 et 67 % selon l'intervention (traitement standard, traitement de l'ensemble de la population par perméthrine ou ivermectine)



Office1

Impétigo: traitement

Article

Antibiotic treatment of skin and soft tissue infections

Antibiothérapie des infections cutanées

Y. Gillet ^{a, b, c}, M. Lorrot ^{a, d, e}, R. Cohena ^{f, g, h, i, j, k}, J. Hau ^{a, l}, E. Grimprel ^{a, j, k}, C. Gras-Le Guen ^{a, l, m}

Table 1. First-line treatment and alternatives in case of allergy for skin and soft tissue infections and bites

Clinical situation Bacteriological target	Recommended regimens	Alternatives (contra-indication of preferred treatment)	Comments
Impetigo Bacterial targets: – <i>S. aureus</i> – <i>S. pyogenes</i>			
– Localized impetigo (nonbul- lous or bullous, skin surface < 2%, < 5 lesion sites)	Mupirocin (local) 3 times/day Treatment duration: 5–7 days	Fucidin (local) 3 times/day Treatment duration: for 5–7 days	Careful soap washing and deterision are always useful, sometimes sufficient.
– Extended impetigo (> 5 lesion sites, extensive or bullous, immunocompromized patient)	Amox + clavulanate (oral) 80 mg/kg/day in 2 or 3 divided doses (maximum 3 g/day) Treatment duration: 7 days	Josamycin (oral) 50 mg/kg/day in 2 divided doses (maximum 2 g/day) Treatment duration: 7 days	Local antibiotic treatment should be preferred whenever possible. Care of underlying dermatosis if applicable (e.g., eczema). Daycare center and school exclusion are recommended for 72 h if lesions are not covered.

Recommandations Afsapps 2004.

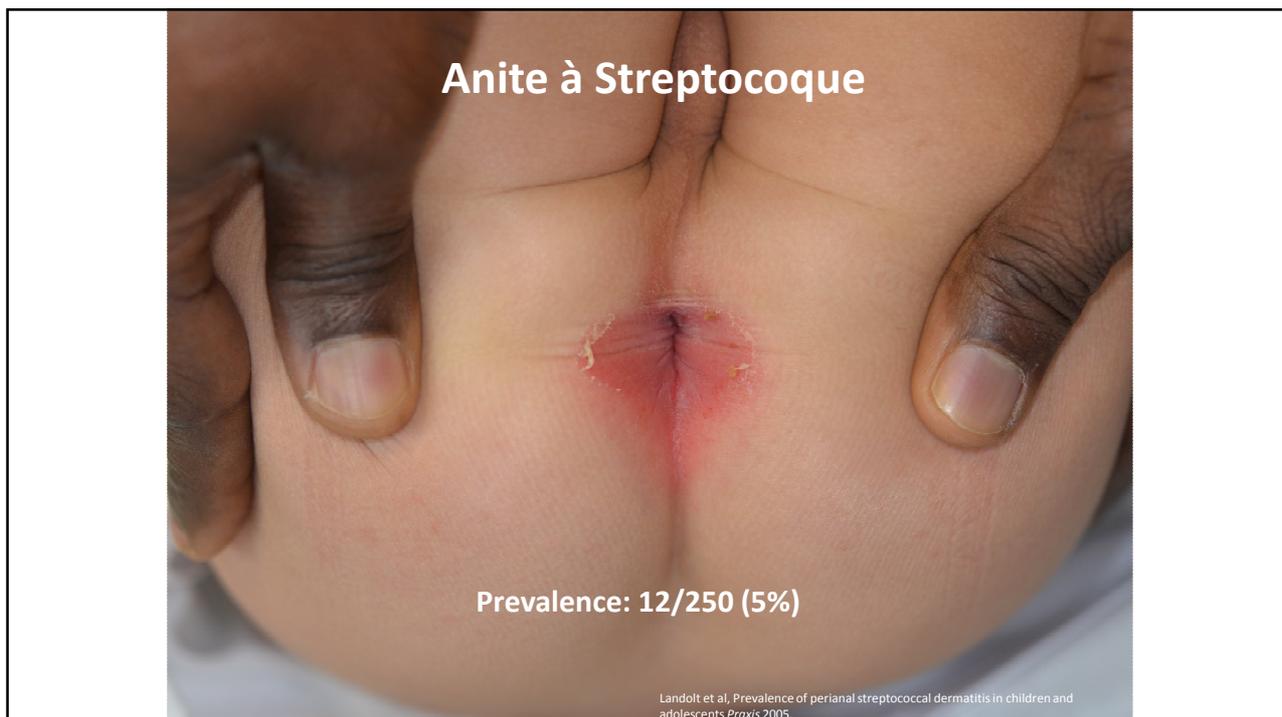
Lorrot et al. Archives de Pédiatrie 2014.



Diapositive 17

Office1 Voir reco pédiatrie

Utilisateur de Microsoft Office; 04/02/2018



Anite à Streptocoque Dermatites périnéales streptococciques

Age moyen 4 ans.
Plutôt les garçons
Délai diagnostic 15 jours

Constipation, prurit anal, douleur à la défécation...

Rarement fébriles.

TDR streptocoque



Olson D and Edmonson B. The pediatric infectious disease journal. 2011;30:933-936

Anite à Streptocoque Dermatites périnéales streptococciques

Taux de récurrence: 30% .

Facteurs associés à une récurrence :

Traitement par Amoxicilline (37%) par rapport aux associations avec inhibiteurs de bêtalactamases
OR :2,39 [95%CI :1,18-4,81]



Traitement :

Amoxicilline en première intention mais prévenir du taux de récidence, durée 10-21 j ?

Alternatives: cefuroxime, macrolides, amoxicilline + inhibiteurs de bêtalactamases ? +/- topique ?

Olson D and Edmonson B. The pediatric infectious disease journal. 2011;30:933-936
Meury SN et al. J Pediatr. 2008 ;153:799-802.

Les infections cutanées bactériennes



Folliculite
Furoncle
Abscess

Staphylococcus aureus

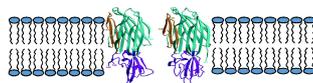
RPCCF
© 2011





Les infections folliculaires: folliculite, furoncle, abcès

Toxine de Panton et Valentine



40% des *S. aureus* isolés de folliculites sont producteurs de la toxine de Panton et Valentine.

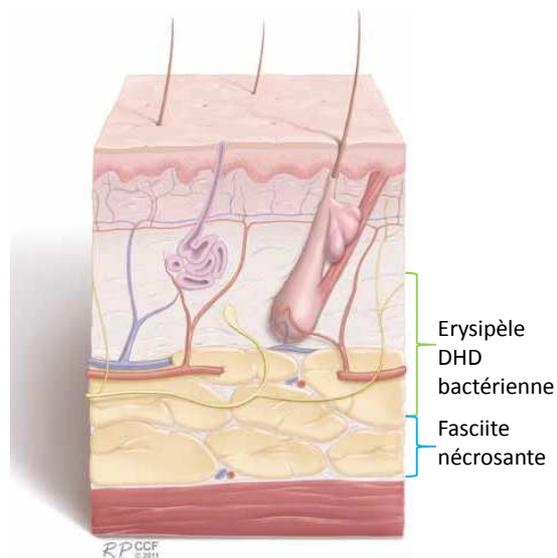
83% des *S. aureus* isolés de furoncles sont producteurs de la toxine de Panton et Valentine.

Capacité de la toxine à générer des infections folliculaires suppuratives.

Couppie P. Arch Dermatol. 1994 ;130(9):1208-9.
 Del Giudice P. Dermatology. 2011;222(2):167-70.
 del Giudice P. Dermatology. 2009;219(4):299-302.



Les infections cutanées bactériennes

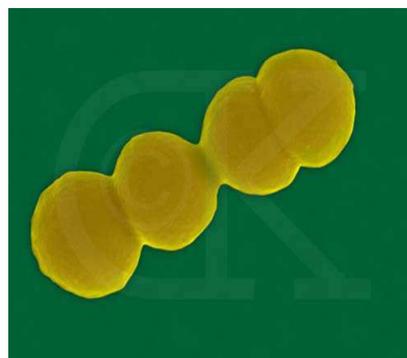


Manifestations toxiques systémiques *Staphylococcus aureus* vs *Streptococcus* spp.



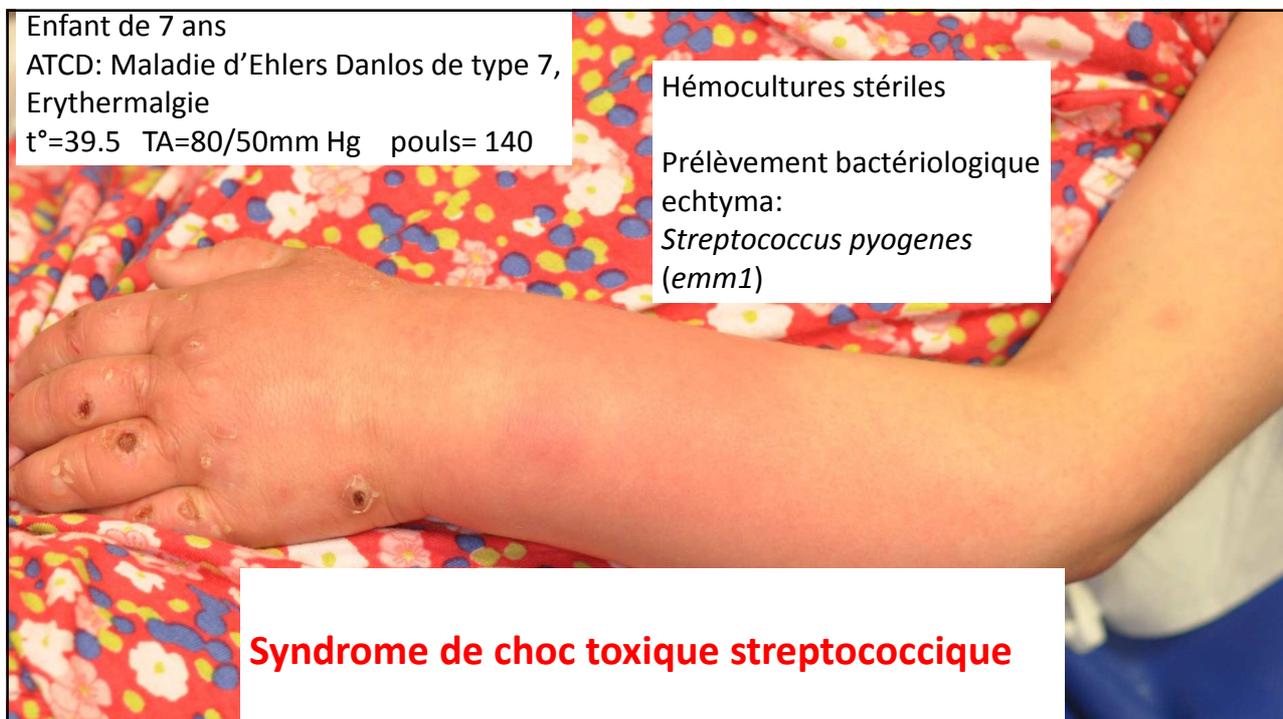
TSST-1, entérotoxines (SEA, SEB...),
exfoliatines A et B

VS



Streptococcal Pyrogenic Exotoxine (A-J)
Streptococcal Mitogenic Exotoxine Z







SCT-streptococcique SCT-staphylococcique

Symptômes communs

Fièvre, hypotension, myalgies, anomalies hépatiques, diarrhée-vomissements, ins rénale et anomalies hématologiques.

Exanthème diffus avec atteinte muqueuse, conjonctivale, desquamation palmo-plantaire retardée.

Différences

Fréquence: SCT Staph >> SCT streptococcique

Foyer infectieux:

Strepto: infection cutanée dans 80% des cas

Staph: infection cutanée 30%, infections génitales 27% (post partum, avortement), post chirurgie 18%, vaginale 6%, 2% ORL, non retrouvée 13%

Hémocultures: positives dans 50-80 % des SCT-strept/ 3-15% dans les SCT-staph

Taux de mortalité: SCT strept>>>> SCT staph

Stevens DL. Emerg Infect Dis 1995;1:69-78.
Gaensbauer JT. Pediatr Infect Dis J. 2018 Dec;37(12):1223-1226.
Lamagni TL et al. Emerg Inf Dis 2008;14:202-9; Davies HD et al. Pediatr Infect Dis J 1994;13:49-56;
Adalat S et al. Arch Dis Child 2014;99:1078-1082.

Enfant de 4 ans

t°=38.4°

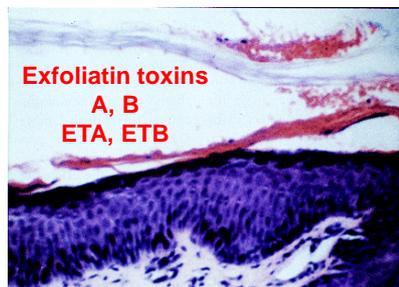
Etat général conservé

Exanthème chaud, douloureux





Epidermolyse aiguë staphylococcique



Epidermolyses aiguës staphylococciques pauci symptomatiques

Staphylococcus aureus characteristics*				
Sequence type	Antibiotype	agr type	Exfoliative toxins	Enterotoxins
ST121	Fusidic acid-resistant	4	ETA	SEM, SEO
ST121	Penicillin-resistant	4	ETA, ETB	SEM, SEO
ST121	Penicillin-resistant; fusidic acid, intermediate resistance	4	ETA	SEM, SEO
ST121	Penicillin-resistant	4	ETA	SEM, SEO
ST121		4	ETA, ETB	SEM, SEO

Mild staphylococcal scalded skin syndrome: an underdiagnosed clinical disorder



Hubiche t et al. Br J Dermatol. 2011

Skin Findings of *Staphylococcus aureus* Toxin-mediated Infection in Relation to Toxin Encoding Genes

Johan Courjon, MD,*†‡§ Thomas Hubiche, MD,† Alice Phan, MD, PhD,‡ Anne Tristan, PharmD, PhD,§
Michele Bès, PhD,§ François Vandenesch, MD, PhD,§ Jerome Etienne, MD, PhD,§
Pascal Del Giudice, MD,† and Yves Gillet, MD§¶

The Pediatric Infectious Disease Journal • Volume 32, Number 7, July 2013

TABLE 2. Comparison of Characteristics of Strains and Patients With *S. aureus* Infections Associated With Exfoliatins or Major Superantigens

	Exfoliatin-associated Rash (n = 13)	Super Ag-associated Rash (n = 9)	P
Mean age (mo)	39.8	45.3	0.746
Major superantigen	1	9	<0.001
Facial involvement	12	2	0.003
Fold involvement	10	0	0.002
Bullous lesion	4	0	0.06
Trunk prevailing rash	0	5	NA*
Nikolski sign	5	0	0.034
Early desquamation	5	1	NA*
Superficial focus	12	1	0.001
Mean body temperature	38	38.8	0.03

NA, not available.

*Missing data did not allow for the statistical comparison of these variables.

Epidermolyse aigue staphylococcique

Incidence annuelle 0.39 / 100,000 personnes, 7.50 per 100,000 children <1 an

Clinique: Fièvre, AEG, érythème extensif, bulles superficielles (Nikolsky +)/ desquamation Pas d'atteinte des muqueuses

***S. aureus* producteur d'exfoliatines.**

Histologie: clivage intra-épidermique (*stratum granulosum*) (absence de nécrose épidermique, de C inflammatoires)

Bon pronostic chez l'enfant: mortalité 0.31% patients < 17 ans, 4.3% chez l'adulte.

Pas d'intérêt démontré des antibiotiques antitoxiniques

Mockenhaupt M et al. J Invest Dermatol 2005; 124:700-7003
Arnold JD et al. J Am Acad Dermatol. 2018 Feb;78(2):404-406.
Staiman A et al. Br J Dermatol. 2017 Oct 27.

Diapositive 42

LE1 0.56 cases/year/million inhabitants
données 1997 2007 CNR
LAUNAY Elise; 09/02/2018

Conclusion

La part respective de *Staphylococcus aureus* et *Streptococcus spp.* dans les infections cutanées varie selon:

Le type d'infections: impétigo, ecthyma....

Les zones géographiques (intertropicales / pays développés)

