



Hôpitaux de Toulouse

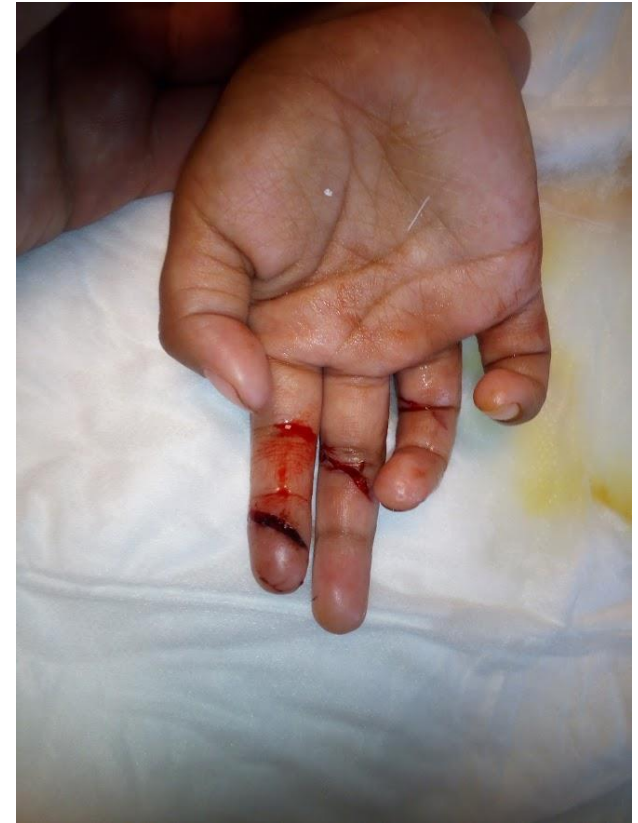


A prospective study about 80 wounds of the palmar surface of the hand and wrist: correlations between the clinical examination and the intra-operative findings

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Introduction

- 350 000 consultations / year in emergency services
- (2.1 millions in the USA)



Colen DL, Fox JP, Chang B, Lin IC. Burden of Hand Maladies in US Emergency Departments. Hand N Y N. 2018 Mar;13(2):228–36

T. Dubert, M. Merle, The French Initiated FESUM – Historical Development, Experience and Perspectives, Handchir Mikrochir plast Chir 2013; 45(06): 323-325

Introduction

Unheeded wounds:

- Phlegmon
- Two-stage rupture of a flexor tendon
- Hypoesthesia/ neuroma
- (Claims...)



Mouton J, Houdre H, Beccari R, Tarissi N, Autran M, Auquit-Auckbur I. Surgical exploration of hand wounds in the emergency room: Preliminary study of 80 personal injury claims. *OrthopTraumatolSurg Res OTSR*. 2016;102(8):1009–12.

Morrison CM, Thompson NW, Herbert KJ, Brennen MD. Missed injuries in the acutely traumatised hand. *Ulster Med J*. 2003 May;72(1):22–5.

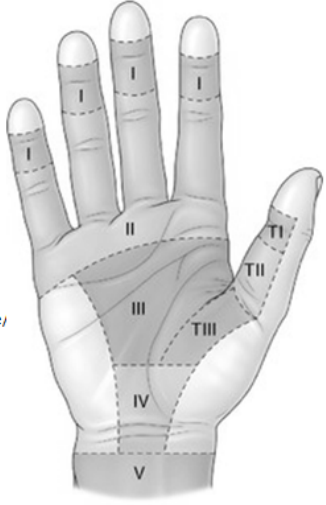
Morrison CM, Thompson NW, Herbert KJ, Brennen MD. Missed injuries in the acutely traumatised hand. *Ulster Med J*. 2003 May;72(1):22–5.

Introduction

- Dogma : « any palmar wound should be explored in the operating room »
- Objectives :
 - Correlate the clinical exam and the lesions
 - Describe the lesions, their mechanisms, their association

Material and method

- Prospective study
- Nov 2018-may 2019
- 2 centers
- 80 patients
- hand and wrist wounds

Date :	Etude prospective : facteurs de risque de lésion des tendons fléchisseurs	ETIQUETTE
Profession :		
Côté DG		
Côté dominant DG		
tabagisme OUI NON		
alcoolisme OUI NON		
drogue OUI NON		
ATCD chirurgicaux sur la main blessée :		
accident de travail OUI NON		
mécanisme lésionnel : lame/ verre/ machine agricole ou industrielle,		
main de portière/ morsure /agent contendant/ autre :		
examen clinique préopératoire :		Dessiner la/les plaie(s)
- déficit flexion IPP OUI NON		
- déficit flexion IPD OUI NON		
- perte effet ténodèse OUI NON		
- déficit sensitif associé OUI NON		
- doigt vascularisé OUI NON		
description des lésions tendineuses :		
lésions associées :		
- atteinte osseuse/ articulaire (description) :		
- atteinte vasculaire (description) :		
- atteinte nerveuse (description) :		
délai blessure/intervention :		
immobilisation préopératoire : OUI NON		
transfert SOS main : OUI NON		
antibiothérapie préopératoire : OUI NON		

Material and method

- Anamnesis
- Tendinous testing
- Sensitive testing (compress)
- Vascularisation



Hahn P, Unglaub F, Spies CK. [Diagnosis of flexor tendon injuries of the hand]. *Orthopade*. 2015 Oct;44(10):743–7.

Bigorre N, Petit A, Saint-Cast Y, Jeudy J, Cesari B, Rabarin F, et al. Interest of the 'compress test' in diagnosis of nerve injury in hand wounds. *OrthopTraumatolSurg Res OTSR*. 2017;103(4):505–7.

Results

	Patients (n=80)
Age (years)	34,1(27-42)
Sex	F:22 (27,5%)M:58 (72,5%)
Wound on dominant hand	59 (73,8%)
Working accident	9 (11,2%)
Admission in specific hand emergency dpt	23 (27,5%)
Tobacco	30 (37,5%)
alcohol/drug	11 (14,0%)
Delaywound/surgery (hours)	19,8 (10.3-29.6)

Results

- 72,5% of lesions(T,V,N)
- 28% undiagnosed lesions:
 - 16% of tendinous lesions (4 partial lesions and 5 digital canal opening)
 - 12% of nervous lesions (2 pedicles complete lacerations and 1 lesion of the ulnar sensitive branch)

Results

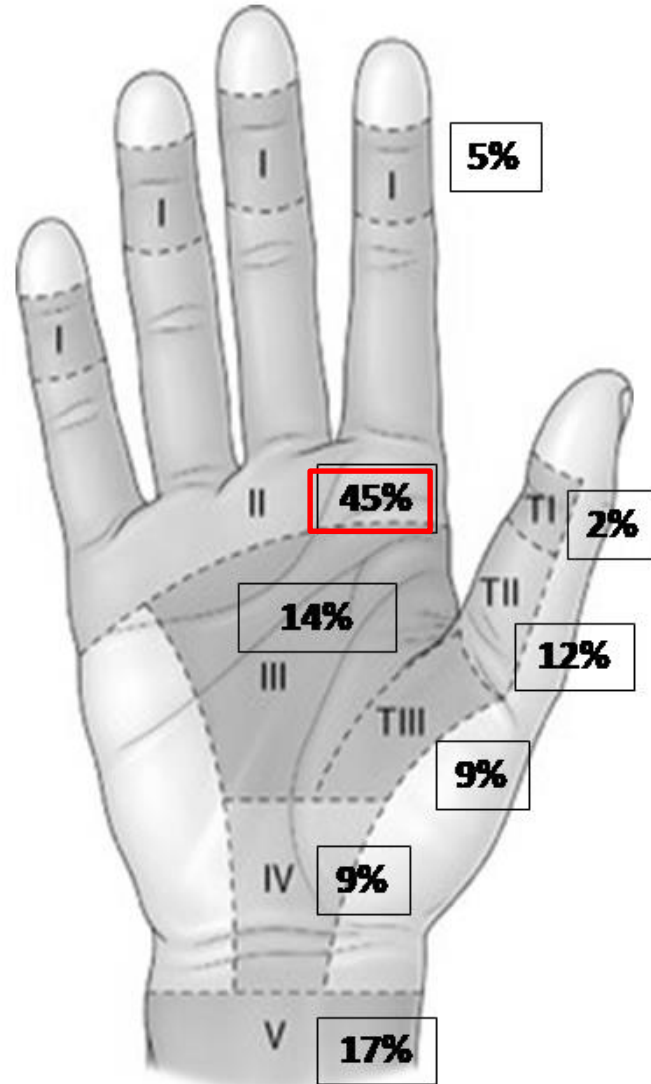


Figure 1 : percentage of wounds according to the volar zone

Results

ZONE	LESION
Zone II	27 (47%)
Zone V	11 (19%)
Zone TII	9 (16%)
Zone III	7 (12%)
Zone TIII	6 (10%)
Zone IV	3 (5%)
Zone I	3 (5%)
Zone TI	2 (3%)
TOTAL	58

Percentage of lesions according to the volar zone

Results



	mechanism	N		Y		
1	blade	6	(17%)	29	(83%)	35
2	industrial/agricultura..	1	(20%)	4	(80%)	5
3	glass	5	(24%)	16	(76%)	21
4	phlebotomy	1	(33%)	2	(67%)	3
5	crushing	6	(55%)	5	(45%)	11
6	bite	3	(60%)	2	(40%)	5
		22		58		80

Discussion

- Center bias

VS



Discussion

- Do size matters?

Injury	Number of Patients	Percentage of 134 Patients
Tendon + nerve	2	1.5
Artery + nerve	3	2.2
Tendon + nerve + artery	15	11.1
Total	20	14.9

Tuncali D, Yavuz N, Terzioglu A, Aslan G. The rate of upper-extremity deep-structure injuries through small penetrating lacerations. *Ann Plast Surg.* 2005 Aug;55(2):146–8.

Discussion

- Up to 33% of undetected lesions of flexor tendons in the literature (16% in this serie)

Gibson TW, Schnall SB, Ashley EM, Stevanovic M. Accuracy of the preoperative examination in Zone 5 wrist lacerations. *ClinOrthop*. 1999 Aug;(365):104–10.

Nassab R, Kok K, Constantinides J, Rajaratnam V. The diagnostic accuracy of clinical examination in hand lacerations. *Int J SurgLond Engl*. 2007 Apr;5(2):105–8

Discussion

- Examiner's experience?

Clinical exam performed by residents and senior surgeons of wrist wounds :
The more experienced , the more missed lesions...



Conclusion

- To suture a palmar wound that is not deficient in emergency service leads to miss 30% of tendinous or vasculonervous lesions
- A palmar wound of the hand and the wrist must be explored in the operative room