
ANESTHÉSIE
RÉANIMATION
SFAR
Société Française d'Anesthésie et de Réanimation
LE CONGRÈS
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URGENCES
21 > 23 SEPT 2017
PALAIS DES CONGRÈS DE PARIS
DOULEUR



WALANT et chirurgie de la main: anesthésie locale ou bloc axillaire?



Dr SLETH JC

Polyclinique Saint-Roch

Montpellier

Aucun conflit d’ intérêt



La chirurgie de la main

- **Chirurgie en urgence**

  -en France plus d'un million d'urgence main-poignet /an

  - FESUM (env 60 centres): 150.000 urgences traumatiques

    66 % traités en soins externes,

    29 % en chirurgie ambulatoire,

    4,6 % hospitalisés

T Dubert. État des lieux de la prise en charge des urgences main en France. E-mémoires de l'Académie Nationale de Chirurgie, 2011, 10 (2) : 027-030

- **Chirurgie réglée**

  Canal carpien (140,000 interventions/an)

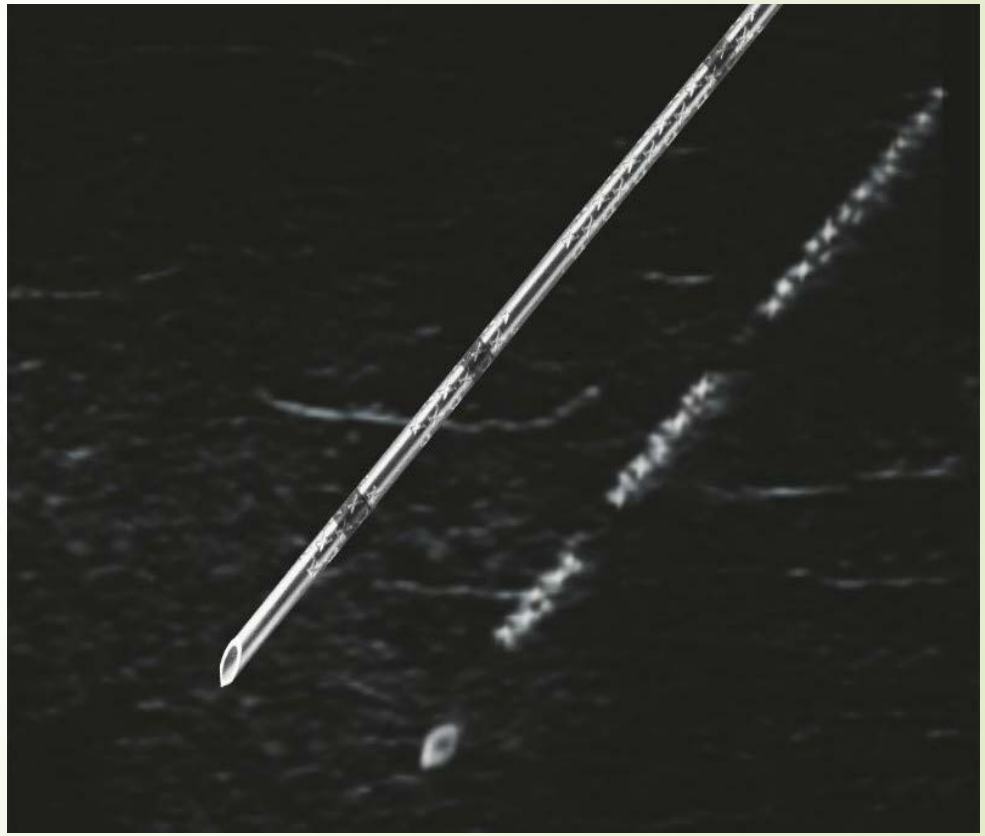
  Doigt à ressaut

  Maladie de Dupuytren

  Rhizarthrose…..

BLOC AXILLAIRE:TECHNIQUE DE REFERENCE





MAIS…….le BAX c'est aussi

- **Des échecs/insuffisances**

Qin Q, Yang D, Xie H, Zhang L, Wang C. Ultrasound guidance improves the success rate of axillary plexus block: a meta-analysis. Braz J Anesthesiol. 2016;66(2):115-9

- **Des accidents toxiques**
- **Des complications neurologiques**

-sans séquelles: paresthésies prolongées

-avec séquelles.

Sites BD, Taenzer AH, Herrick MD, Gilloon C, Antonakakis J, Richins J, Beach ML. Incidence of local anesthetic systemic toxicity and postoperative neurologic symptoms associated with 12,668 ultrasound-guided nerve blocks: an analysis from a prospective clinical registry.Reg Anesth Pain Med. 2012;37(5):478-82

MAIS…..pour le chirurgien et le patient c’est aussi

- **Necessité d’un garrot**

  -tolérance variable

  -complication propre

- **Bloc moteur associé**

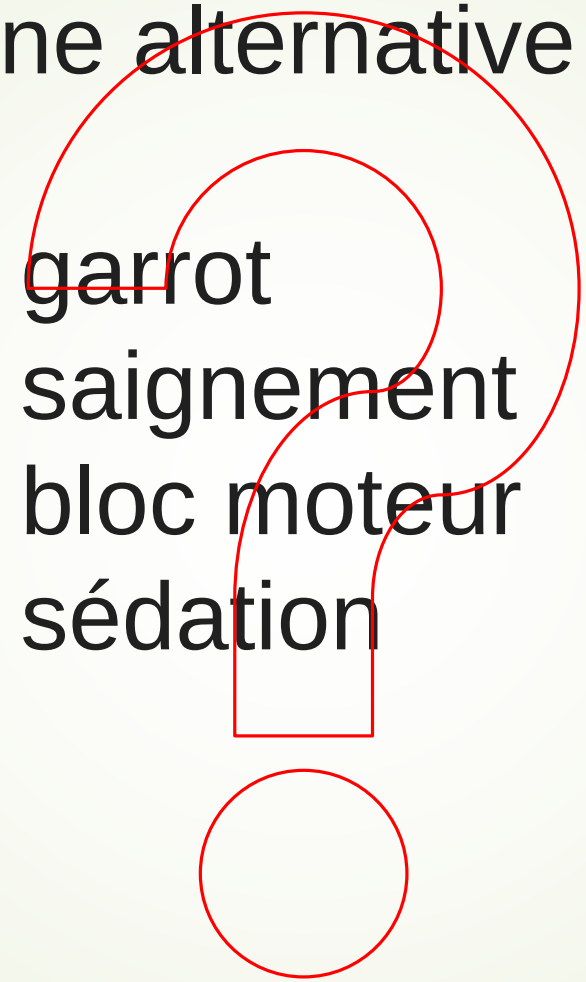
  -peropératoire

  -postopératoire

- **Sédation associée**

Existe-t-il une alternative

sans garrot
sans saignement
sans bloc moteur
sans sédation



WALANT:

WIDE **A**WAKE

LOCAL **A**NESTHESIA

NO **T**OURNIQUET

ou bien **WIDE AWAKE HAND SURGERY**

2017, l'année du WALANT…….

2017 AAHS ANNUAL MEETING

AAHS American Association for Hand Surgery

in collaboration with THE ROMANIAN SOCIETY FOR SURGERY OF THE HAND

JANUARY 10-14, 2017 HILTON WAIKOLOA VILLAGE | WAIKOLOA, HAWAII

Meeting Home

2017 Program

In Collaboration with the Romanian Society for Surgery of the Hand (RSSH) View Schedule At A Glance

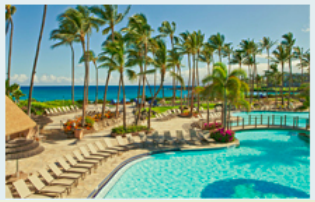
Program and Abstracts | View ePosters

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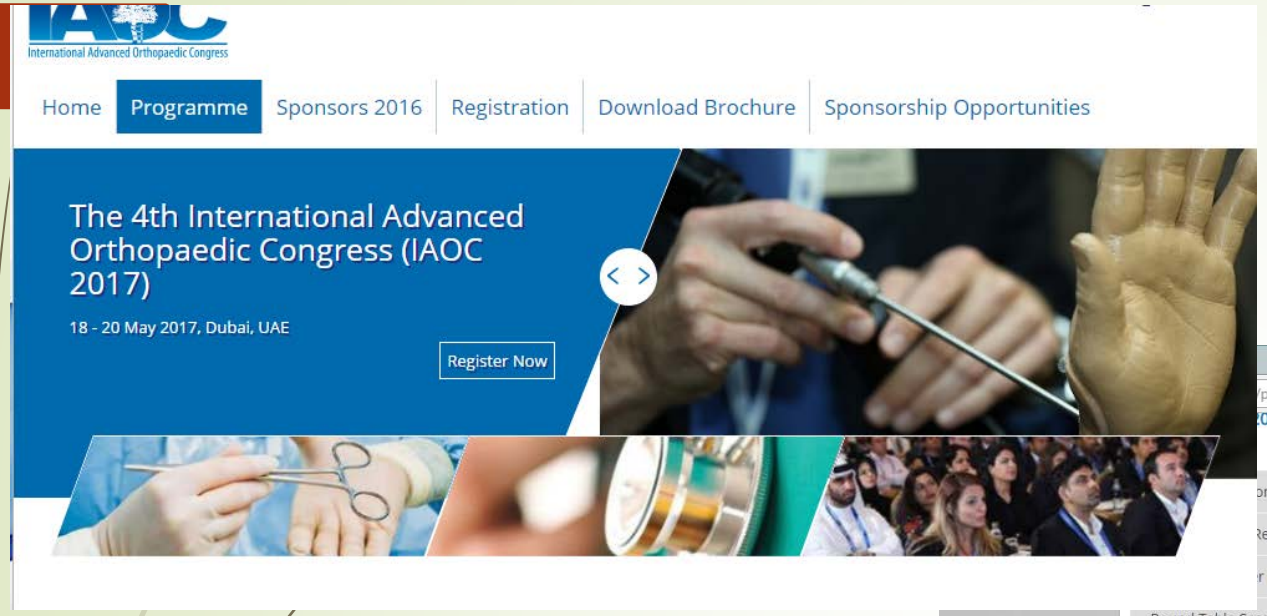


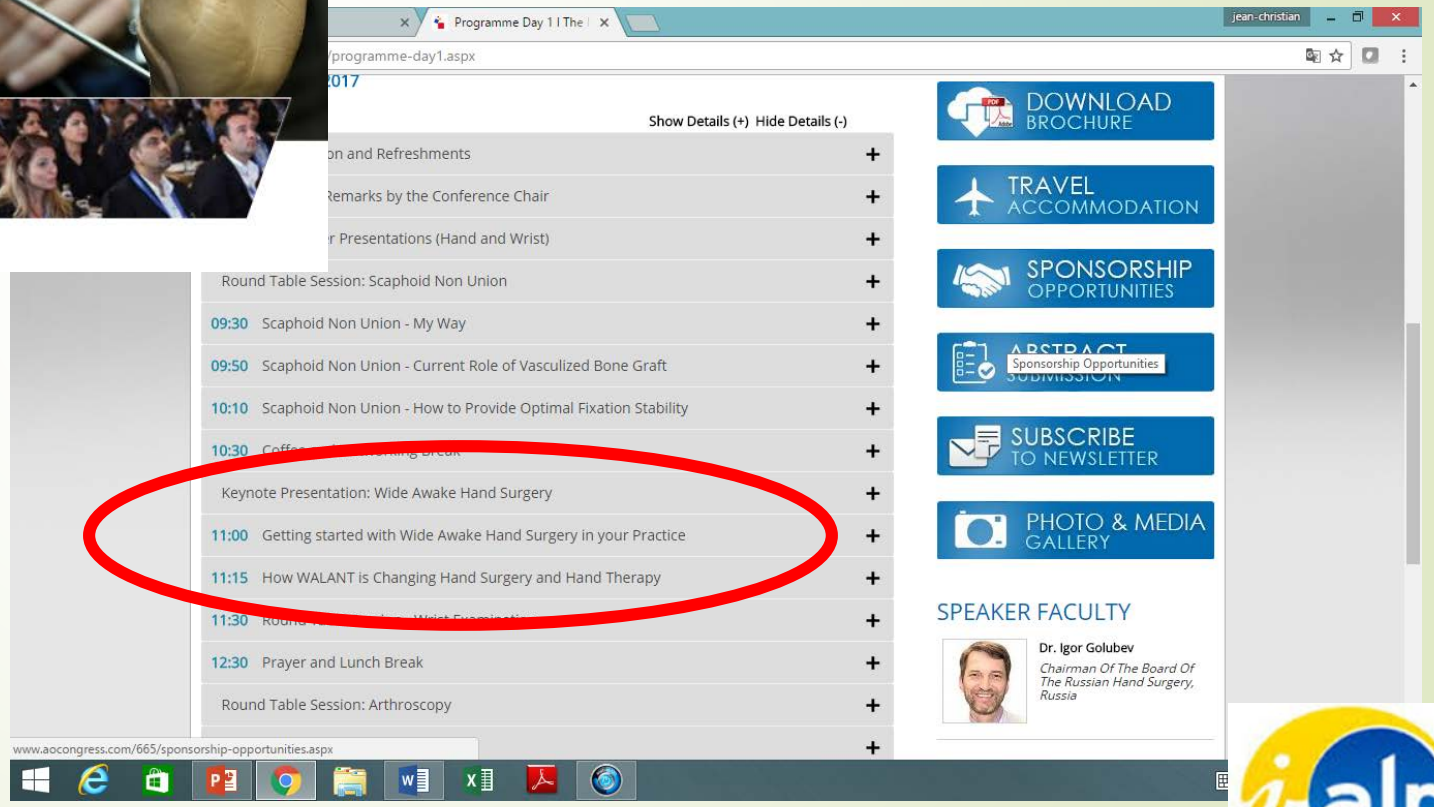
Tuesday January 10, 2017

7:00 am - 8:00 am **Continental Breakfast**

8:00 am - 12:00 pm **Ultrasound Course: Application for Upper Extremity** SOLD OUT
(Separate Registration Required)
Course Chair: Jeffrey Brault, DO
Course Faculty: [illegible] Jay Smith, MD; Jacob L. Sellon, MD; Darryl E. Barnes, MD; Keith A. Bengtson, MD, Mark H. [illegible] Brian Jurbala, MD

1:00 pm - 6:00 pm **Comprehensive Wide Awake Hand Surgery Course**
(Separate Registration Required)
Course Chair: Donald H. Lalonde, MD
Course Faculty: Jin Bo Tang MD; Wyndell H. Merritt MD; Warren C. Hammert MD; [illegible] C. Amadio MD; Peter J. Stern MD; Gilles Candelier MD


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18 - 20 May 2017, Dubai, UAE
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Programme Day 1 | The
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Round Table Session: Scaphoid Non Union
09:30 Scaphoid Non Union - My Way
09:50 Scaphoid Non Union - Current Role of Vasculized Bone Graft
10:10 Scaphoid Non Union - How to Provide Optimal Fixation Stability
Keynote Presentation: Wide Awake Hand Surgery
11:00 Getting started with Wide Awake Hand Surgery in your Practice
11:15 How WALANT is Changing Hand Surgery and Hand Therapy
12:30 Prayer and Lunch Break
Round Table Session: Arthroscopy
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Chairman Of The Board Of The Russian Hand Surgery, Russia
www.aocongress.com/665/sponsorship-opportunities.aspx



PRACTICAL DETAILS ABOUT PERFORMING WIDE AWAKE HAND SURGERY

S050 Special Session

Chairs: Donald Lalonde

15:30 - 16:30 | Friday, 23 June 2017 | Orange room

A-0977 Introduction and Cost implications

Raja Sabapathy

India

A-0978 Details of Distal radius fracture WALANT reduction

Gilles Candelier

France

A-0979 Details of WALANT wide-awake flexor tendon repair, nerve repair and nerve decompression

Jin Bo Tang

China

A-0980 Lessons learned in our first 250 cases of WALANT

Andreas Gohritz

Switzerland

A-0981 Details of minimal pain efficient safe local injection, trapeziectomy, tendon transfer, and other procedures

Don Lalonde

Canada

DGH 2017

Home | Programme | Industry | Events | Registration | Travel & Hotel | Information

58th Congress of the Deutsche Gesellschaft für Handchirurgie

Guest Society:
The British Society for Surgery of the Hand



Congress President:
Univ.-Prof. Dr. med. Riccardo E. Giunta
Klinikum der
Ludwig-Maximilians-Universität München

October 12th to 14th 2017
Gasteig München

Inspired by Hand Surgery

Scientific Programme

Main subjects

- Acute Hand Injuries and Hand Trauma Centers
- Arthroscopic Repair in acute and degenerative Wrist Injuries
- Hand Surgery of the elderly and Prosthetic Replacement
- Flaps in Hand Surgery
- Advances in Peripheral Nerve Surgery
- Hand Surgery in WALANT – Where are the limits?
- New Technologies and new Therapeutic Approaches

Important Dates

February 2017
Start of Registration

5 March 2017
Deadline Abstract Submission

28 May 2017
Deadline Early Registration

Downloads

Société française de la chirurgie de la main



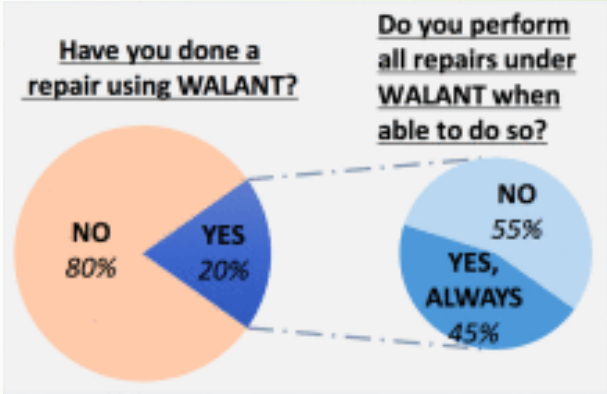
- SYMPOSIUM

WALANT chirurgie : états des lieux en France

B. Renaud (Saint Brieuc), G. Candelier (Caen), T. Apard (Caen)

Ce n’est pas une technique confidentielle…..

- American Society for Surgery of the Hand
- 410 réponses (taux de réponses:15%)
- 20% WALANT pour TTT lesions T fléchisseurs



Gibson PD, Sobol GL, Ahmed IH. Zone II Flexor Tendon Repairs in the United States: Trends in Current Management.J Hand Surg Am. 2017 ;42(2):99-108.

Depuis plus de 10 ans à Londres:
One Stop Wide Awake Hand Surgery (OSWA) ….
modèle reconnu par la Royal Society of Medicine

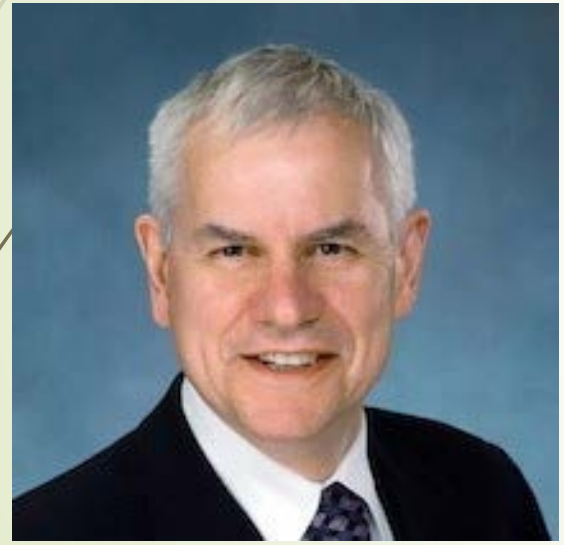




Transition to total one-stop wide-awake hand surgery service-audit: a retrospective review.
Bismil M, Bismil Q, Harding D, Harris P, Lamyman E, Sansby L. JRSM Short Rep. 2012;3(4):23.

Bismil Q, Bismil M, Bismil A, Neathey J, Gadd J, Roberts S, Brewster J. The development of one-stop wide-awake dupuytren's fasciectomy service: a retrospective review. JRSM Short Rep. 2012;3(7):48.

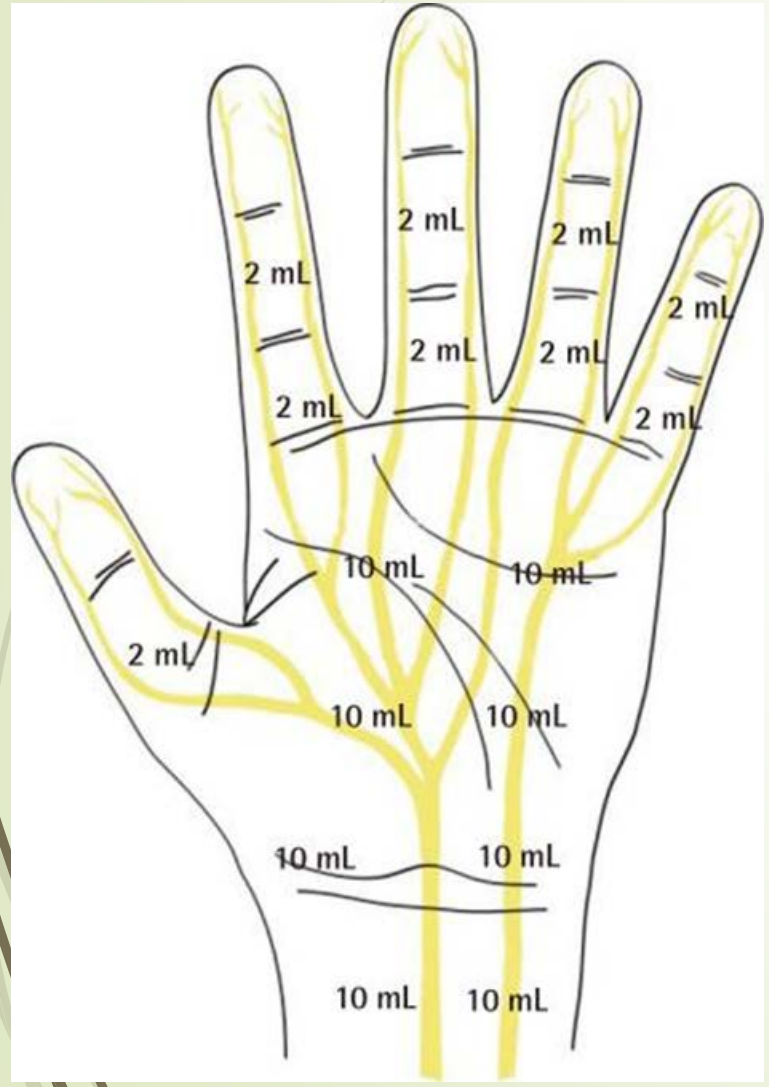
A l’origine de cette nouvelle approche…. un chirurgien canadien!!!



Professor Don Lalonde

MD, BSc, MSc, FRCSC Professor of Surgery, Dalhousie University
Chief of Plastic and Reconstructive Surgery,
Saint John, New Brunswick, Canada

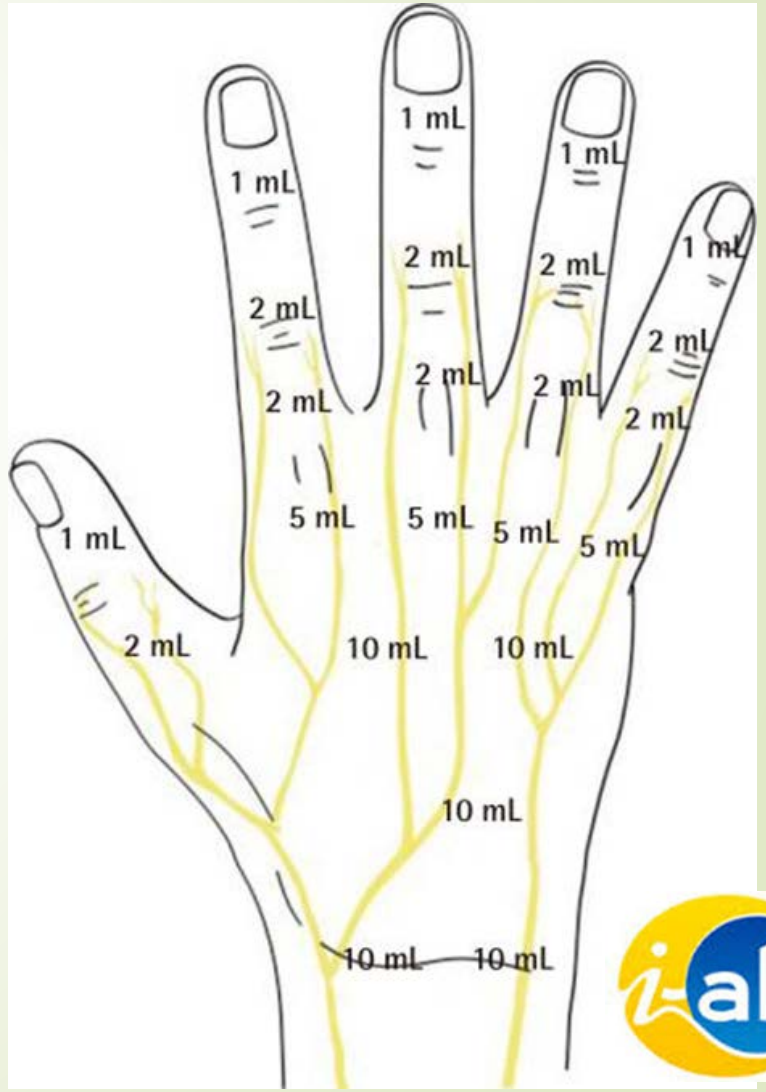
UNE TECHNIQUE D’ INFILTRATION adaptée au geste chirurgical avec un AL **ADRENALINE**



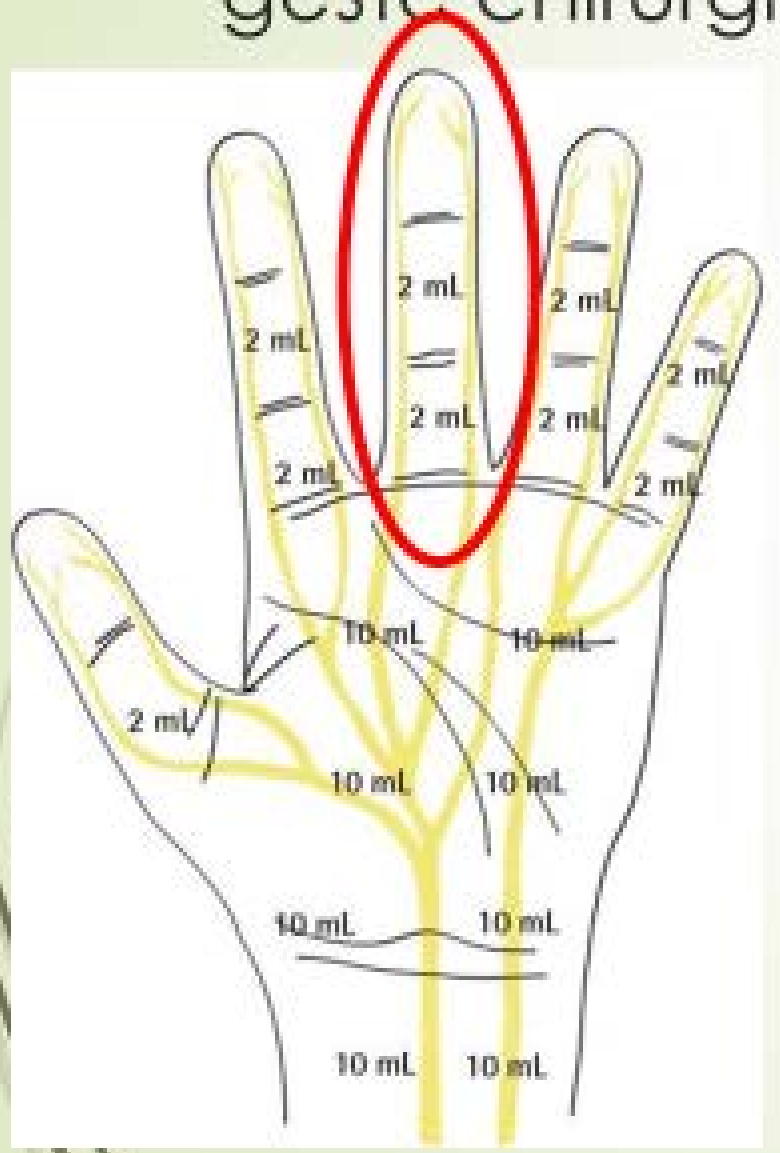
Pas de bloc moteur

Pas de saignement

Pas de garrot



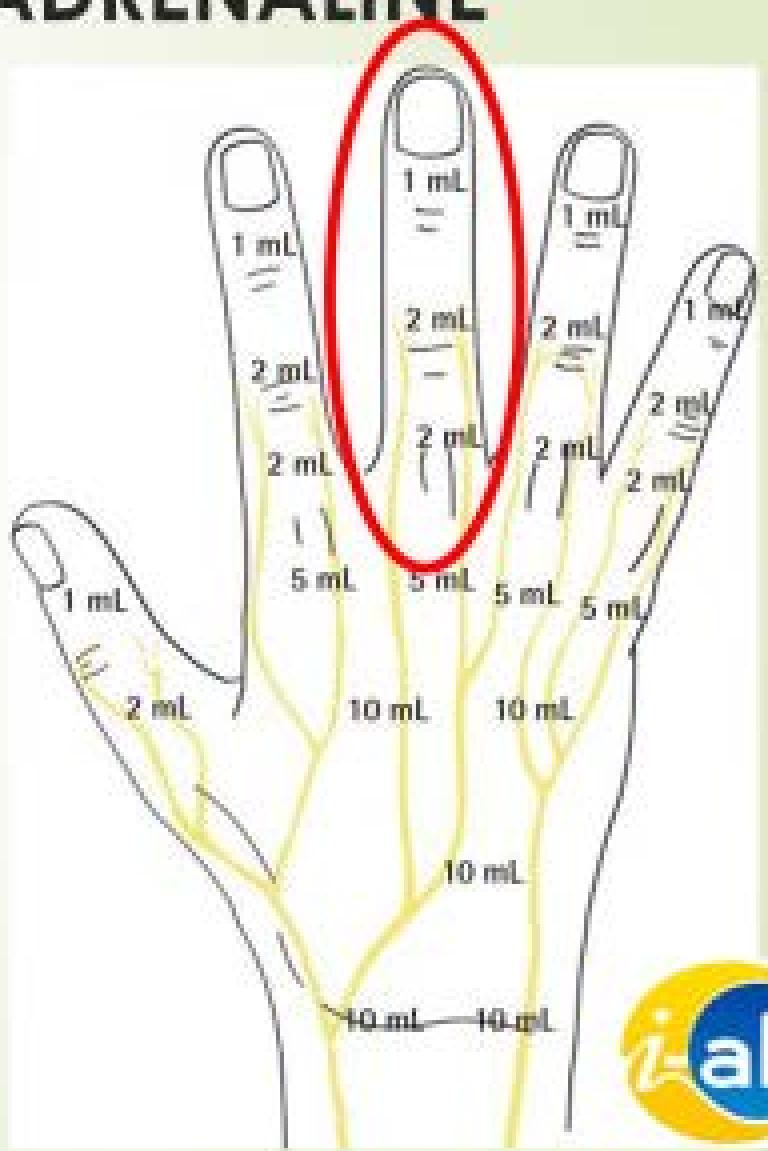
UNE TECHNIQUE D' INFILTRATION adaptée au geste chirurgical avec un AL **ADRENALINE**



Pas de bloc moteur

Pas de saignement

Pas de garrot



« Les solutions adrénalinées sont contre indiquées pour l’anesthésie par infiltration locale au niveau des extrémités (doigt, verge) »

in ANSM

Quel anesthésique local?

lidocaïne 1% **Ad 1:100,000** (+bicarbonate 8,4% 1:10)

max 7mg/kg (ex: 50 ml adulte 70kg)

Pour des volumes plus importants utilisation de faibles concentrations (concentration minimale efficace: lidocaïne 0,1% Ad 1:1,000,000)

Prasetyono TO, Saputra DK, Astriana WOne-per-mil tumescent technique for bone and joint surgery in hand. Hand (N Y). 2015 Mar;10(1):123-7.

Délai et durée d’action de la vasoconstriction en clinique

- Délai optimal : 30 minutes
- Durée : supérieure à 2 heures

McKee DE, **Lalonde DH**, Thoma A, Glennie DL, Hayward JE. Optimal time delay between epinephrine injection and incision to minimize bleeding. Plast Reconstr Surg. 2013;131(4):811-4.

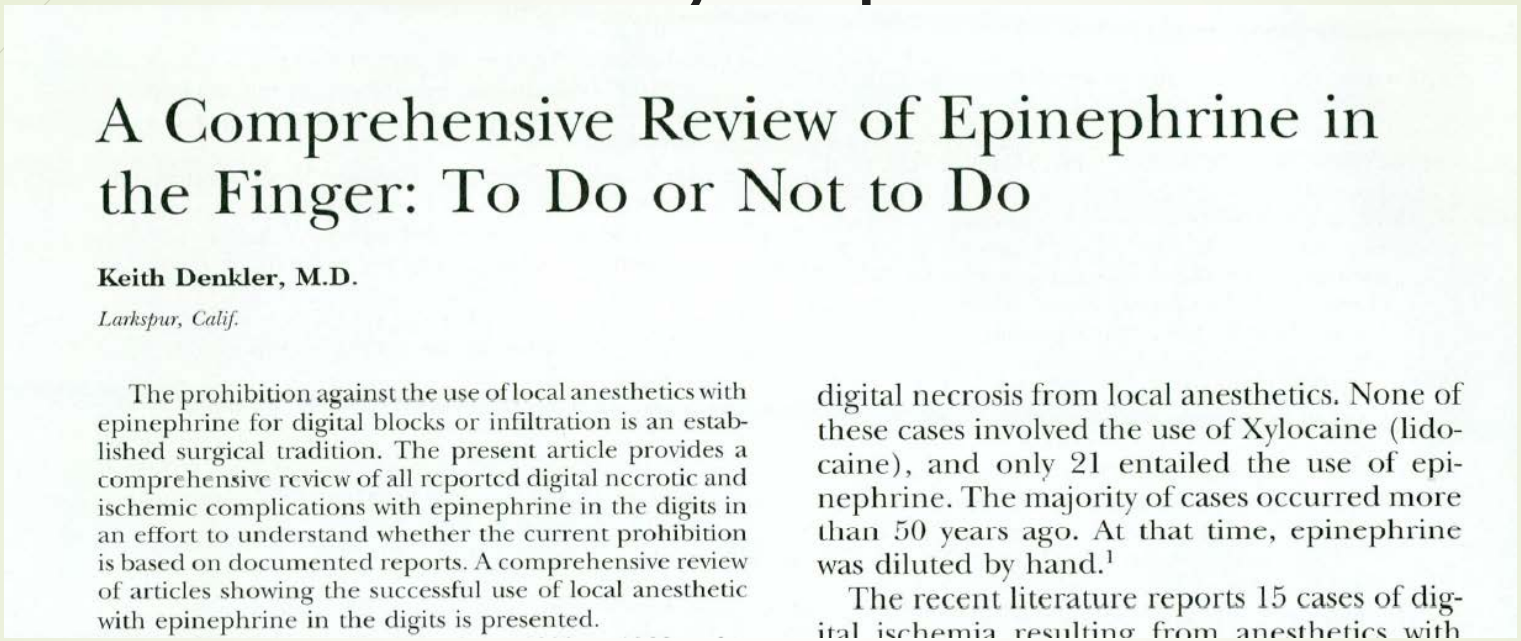
Recherche sur PubMed:
"digital block AND epinephrine”
ou
“digital block AND adrenaline"

plus de 60 articles identifiés:
9 revues,
18 séries
12 études contrôlées

Prabhakar H, Rath S, Kalaivani M, Bhanderi N. Adrenaline with lidocaine for digital nerve blocks. Cochrane Database Syst Rev. 2015 Mar 19;(3):CD010645.

From the limited data available, **evidence is insufficient to recommend use or avoidance of adrenaline in digital nerve blocks.** The evidence provided in this review indicates that addition of adrenaline to lidocaine may prolong the duration of anaesthesia and reduce the risk of bleeding during surgery, although the quality of the evidence is low

Adrénaline et anesthésie des doigts: un débat qui a commencé il y a plus de15 ans…..



A Comprehensive Review of Epinephrine in the Finger: To Do or Not to Do

Keith Denkler, M.D.

Larkspur, Calif.

The prohibition against the use of local anesthetics with epinephrine for digital blocks or infiltration is an established surgical tradition. The present article provides a comprehensive review of all reported digital necrotic and ischemic complications with epinephrine in the digits in an effort to understand whether the current prohibition is based on documented reports. A comprehensive review of articles showing the successful use of local anesthetic with epinephrine in the digits is presented.

digital necrosis from local anesthetics. None of these cases involved the use of Xylocaine (lidocaine), and only 21 entailed the use of epinephrine. The majority of cases occurred more than 50 years ago. At that time, epinephrine was diluted by hand.[1]

The recent literature reports 15 cases of digital ischemia resulting from anesthetics with

Résumés des revues de la littérature:

- 21 cas de nécroses digitales (1940-1950)
- Procaïne et cocaïne adrénalinée
- Ph 1,0
- Usa, UK, Norvège, Suède très critiques vis-à-vis de la contre indication

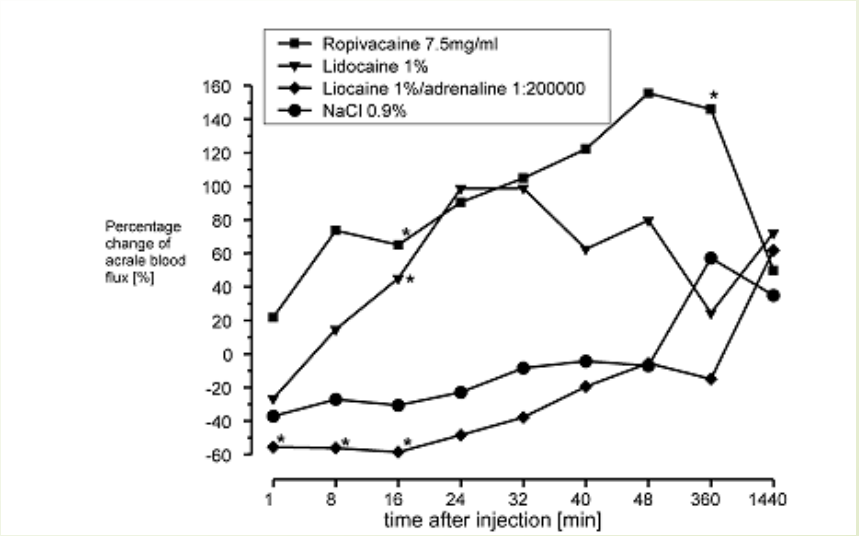
Séries cliniques prospectives et rétrospectives

Lalonde D, Bell M, Benoit P, Sparkes G, Denkler K, Chang P.
A multicenter **prospective study of 3,110 consecutive cases** of elective epinephrine use in the fingers and hand: the Dalhousie Project clinical phase. J Hand Surg Am. 2005 Sep;30(5):1061-7.

Chowdhry S, Seidenstricker L, Cooney DS, Hazani R, Wilhelmi BJ.
Do not use epinephrine in digital blocks: myth or truth? Part II. A **retrospective review of 1,111 cases**. Plast Reconstr Surg. 2010;126(6):2031-4.

Arguments pharmacodynamiques

- 1998 Sylaidis lido2% ad 1:80,000: réduction temporaire du flux digital
- 2004 Altinyazar lido2% ad1:100,000; normalisation des paramètres doppler a 90 min
- 2008 sönmez lido2% ad 1:80,000 pas de modification des GDS capillaire a 15 min
- 2008-2011-2013 Häfner Breuninger réduction du débit de moins de 60% et normalisation a 50 min



Accidents avec stylos autoinjecteurs d’adrénaline



300-500µg/0,3ml

Muck AE, Bebarta VS, Borys DJ, Morgan DL. Six years of epinephrine digital injections: absence of significant local or systemic effects.
Ann Emerg Med. 2010;56(3):270-4.

Néanmoins….sur une période de 2 ans

1-Hutting K, van Rappard JR, Prins A, Knepper AB, Mouës-Vink C. Digital necrosis after local anaesthesia with epinephrine. Ned Tijdschr Geneeskd. 2015;159:A9477.

2-Zhang JX, Gray J, **Lalonde DH**, Carr N. Digital Necrosis After Lidocaine and Epinephrine Injection in the Flexor Tendon Sheath Without Phentolamine Rescue. J Hand Surg Am. 2017;42(2):119-123







3-Zhu AF, Hood BR, Morris MS, Ozer K. Delayed-Onset Digital Ischemia After Local Anesthetic With Epinephrine Injection Requiring Phentolamine Reversal. J Hand Surg Am. 2017;42(6):479.e1-479.e4

Antidote: la Phentolamine
Alpha-bloquant non sélectif (α1 et α2)

- ATU nominative (ANSM): laboratoires Sandoz Canada (5mg/ml), laboratoires Paladin Inc et laboratoires Bedford

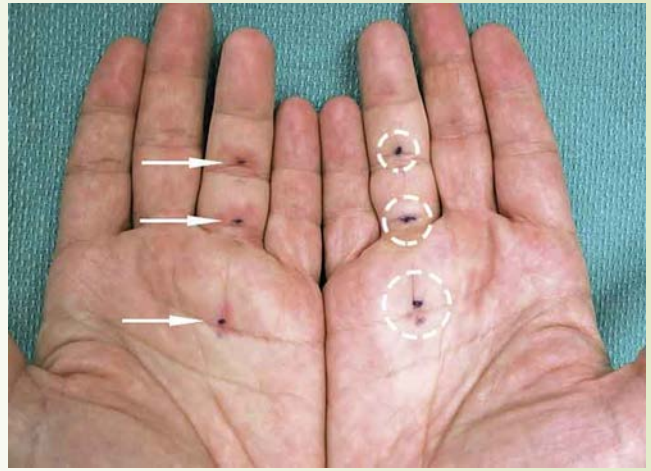
- Oraverse®



400µg par cartouche

80 € la boite de 10 cartouches de 1,7 mL

Protocole



- Infiltration zone de ponction++
- Infiltration dorsale base du doigt (bloc selon Oberst)

0,5 à 1 mg à répéter

Retour de la coloration en 30-60 minutes

Nodwell T, **Lalonde D**. How long does it take phentolamine to reverse adrenaline-induced vasoconstriction in the finger and hand? A prospective, randomized, blinded study: The Dalhousie project experimental phase. Can J Plast Surg. 2003;11(4):187-90

Maguire WM, Reisdorff EJ, Smith D, Wiegenstein JG. Epinephrine-induced vasospasm reversed by phentolamine digital block. Am J Emerg Med. 1990;8(1):46-7.

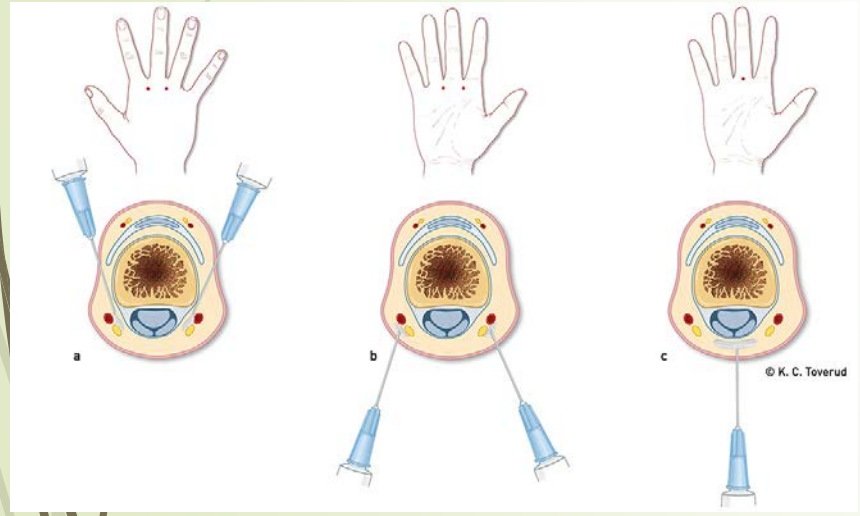
Fitzcharles-Bowe C, Denkler K, **Lalonde D**. Finger injection with high-dose (1:1,000) epinephrine: Does it cause finger necrosis and should it be treated? Hand (N Y). 2007;2(1):5-11

QUELQUES EXEMPLES D'INTERVENTIONS SELON LE MODE WALANT

INJECTION SANS DOULEUR

AL température ambiante
Aiguille 27G
Tamponnée
Injection lente

SIMPLE BLOCK (**S**ingle Subcutaneous **I**njection **M**iddle **P**roximal phalanx **L**idocaine **E**pinephrine)



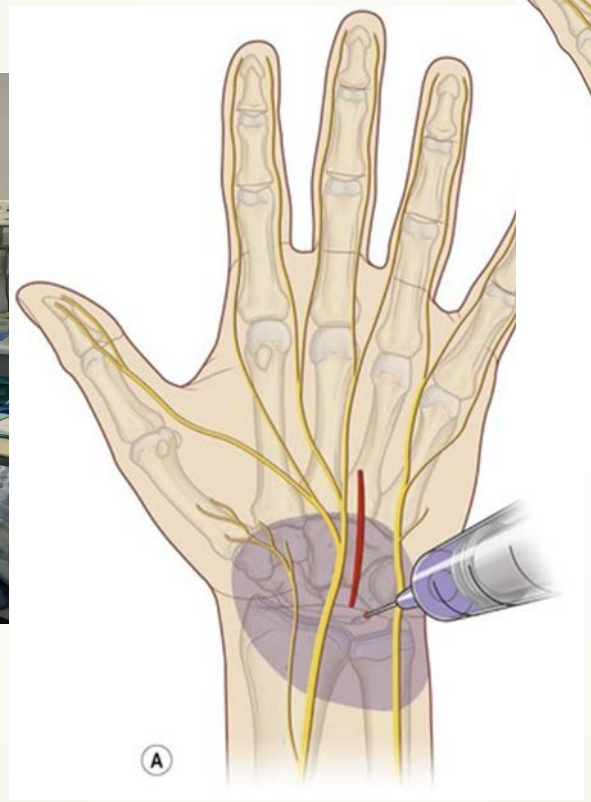
Durée du bloc sensitif bloc digital

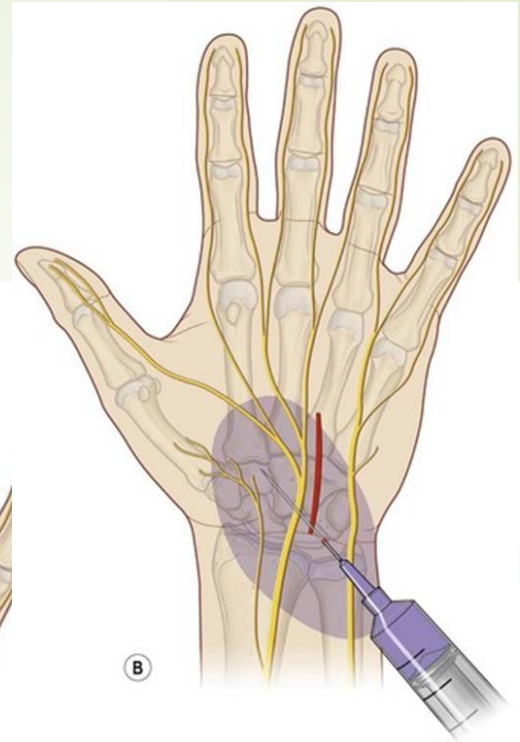
- 2% lidocaine with epinephrine (1:100,000), 10.4 hours
- 2% lidocaine, 4.9 hours
- 0.5% bupivacaine, 24.9 hours

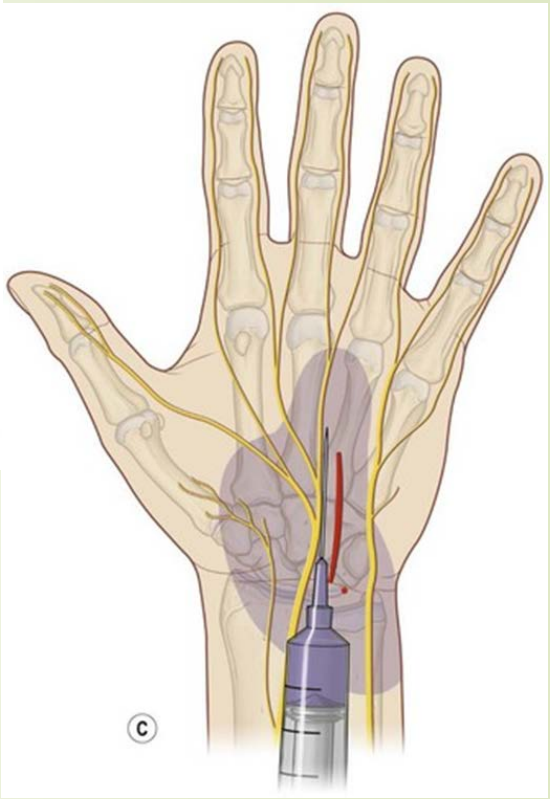
Thomson C, **Lalonde D**. Randomized Double-Blind Comparison of Duration of Anesthesia among Three Commonly Used Agents in Digital Nerve Block. Plast Reconst Surg. 2006 118;2: 429-432

CANAL CARPIEN









30-40 ml AL
durée injection: 3 minutes

SUTURES TENDINEUSES zone 2(1)

5ml



2ml



2ml

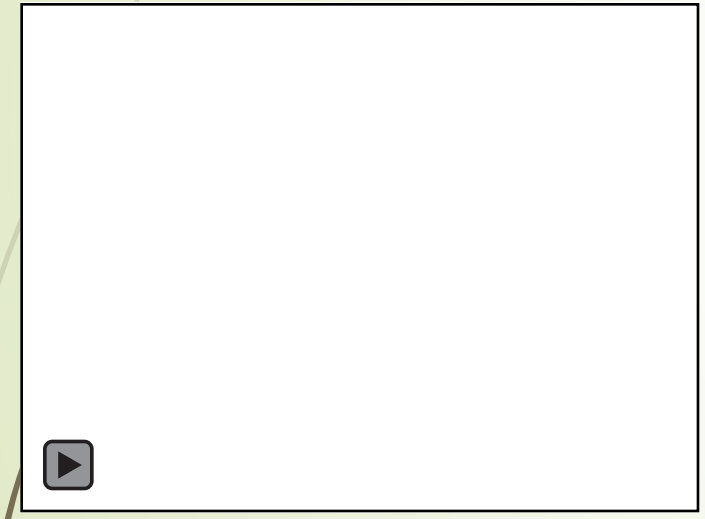


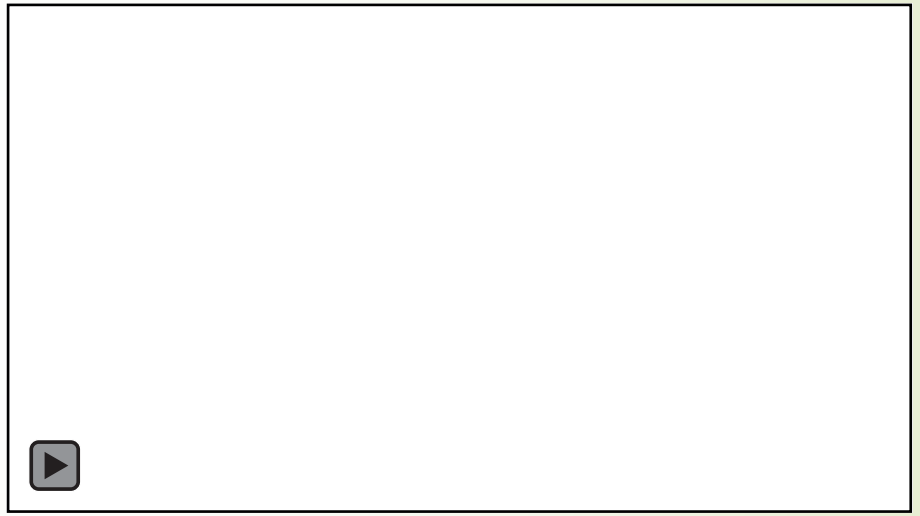
1ml



SUTURES TENDINEUSES zone 2 (2)

Dr CANDELIER Gilles, Hôpital Privé Saint-Martin, Caen
Clinique de la Baie, Avranches

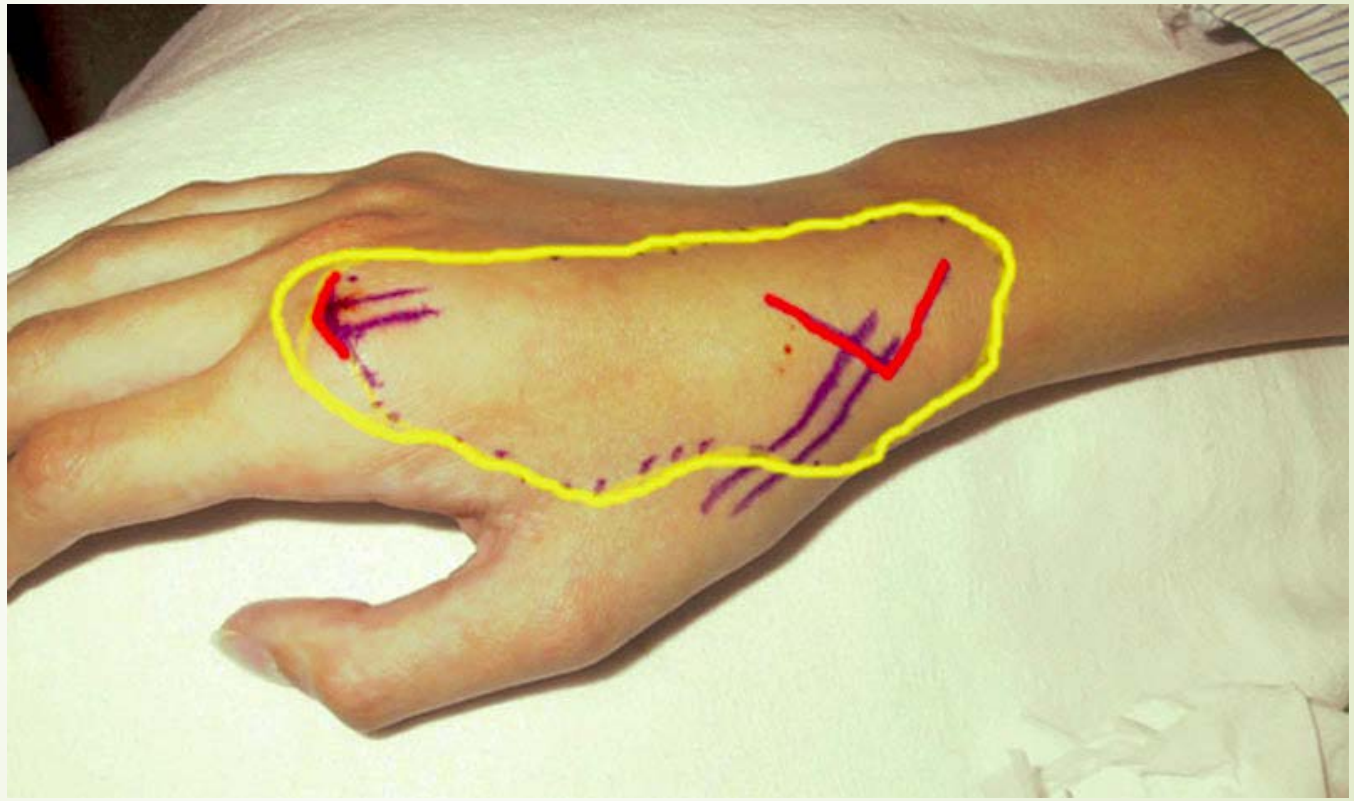




Teo I, Lam W, Muthayya P, Steele K, Alexander S, Miller G. Patients' perspective of wide-awake hand surgery--100 consecutive cases. J Hand Surg Eur Vol. 2013;38(9):992-9

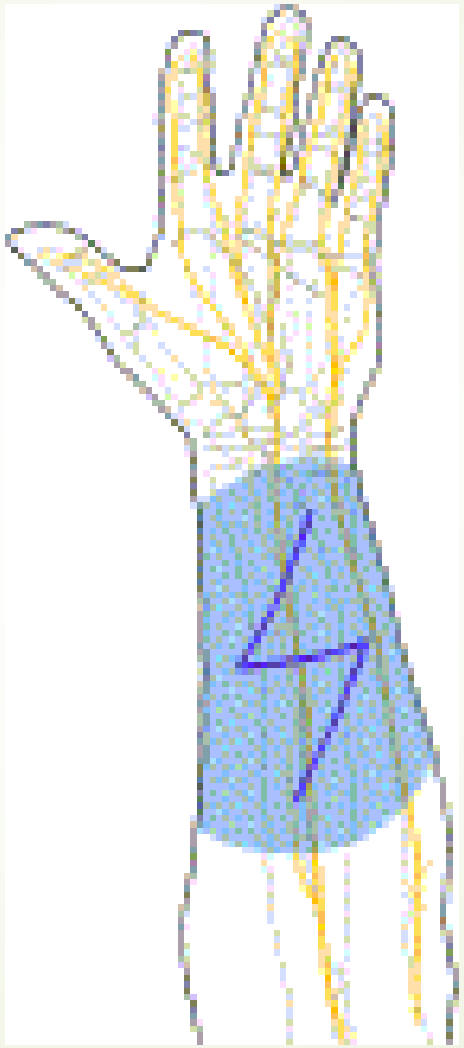
TRANSPOSITION TENDINEUSE

30 ml AL



« SPAGHETTI WRIST »





- 100-150 ml
- Lidocaine 0,5% adrenaline 1:200.000

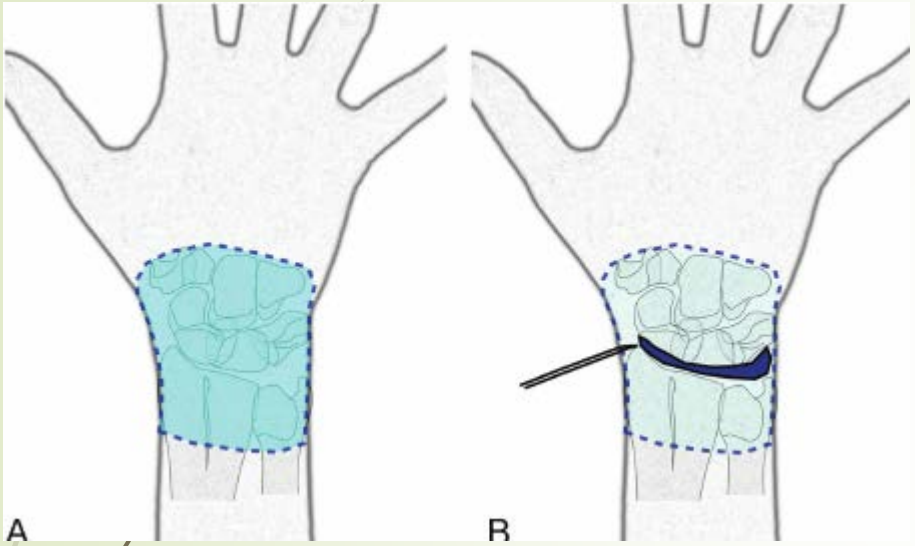
Wong J, Lin CH, Chang NJ, Chen HC, Lin YT, Hsu CC. Digital revascularization and replantation using the wide-awake hand surgery technique. J Hand Surg Eur Vol. 2017;42(6):621-625

Table 1. Patient demographic, surgical summary and outcomes.

Case	Age (years), Sex	Mechanism	Co-morbidities	Injury	Ischaemia time (h)	Volume (mL)	Procedures	Vein grafts	Temporary tourniquet (min)	Duration of surgery (min)	Clinical outcomes	Follow-up (months)	Functional outcome (TAM %)
1	33, M	Crush by heavy machinery	Smoker	Right middle finger DIPJ open dislocation, devascularization	4	11.8	Revascularization	0	0	80	Survived without complication	8	88
2	52, M	Crush by heavy machinery	Ischaemic heart disease	Left hand crush injury with index to little finger proximal phalangeal open fracture, devascularization	72	55	Revascularization of two digits	2	0	340	Superficial necrosis, secondary healing	11	27 + 29
3	47, M	Cut by machinery	None	Left index finger incomplete amputation at PIPJ level	5.5	12	Replantation	0	0	120	Survived without complication	13	61
4	21, M	Crush injury by brick	Smoker	Right ring finger fingertip incomplete amputation	10	15.5	Replantation	1	0	150	Partial necrosis, secondary healing	6	88
5	40, M	Cut by knife	Smoker	Left index finger middle phalanx level complete amputation	6	16	Replantation	0	10	260	Survived without complication	6	43
6	53, M	Cut by electric saw	Smoker with lung cancer	Left thumb at level of distal phalanx incomplete amputation	5	10	Replantation	0	0	256	Survived without complication	4	44
7	62, F	Cut by knife	None	Left little finger ring avulsion incomplete amputation at proximal phalanx	5.7	20	Replantation	0	20	260	Superficial necrosis, secondary healing	6	48
8	44, M	Cut by machinery	Smoker	Right middle finger complete amputation at DIPJ	3	10	Replantation	0	10	296	Survived without complication	6	70
9	48, F	Cut by machinery	None	Deep left index laceration at DIPJ	9	10	Revascularization	1	0	210	Survived without complication	4	87
10	45, M	Crush by heavy machinery	None	Right index degloving injury at MCPJ level	6	10	Revascularization	1	0	80	Superficial necrosis, secondary healing	6	48
11	65, M	Crush by heavy machinery	End stage renal failure, diabetes, hypertension	Right little finger complete amputation at base of proximal phalanx	9	11	Replantation	0	0	160	Survived without complication	5	91
12	36, M	Crush by heavy machinery	None	Right ring finger avulsion injury at middle phalanx	3	6	Replantation	0	0	180	Survived without complication	6	

MCPJ: metacarpal phalangeal joint; PIPJ: proximal interphalangeal joint; DIPJ: distal interphalangeal joint.

ARTHROSCOPIE/LIGAMENT TRIANGULAIRE



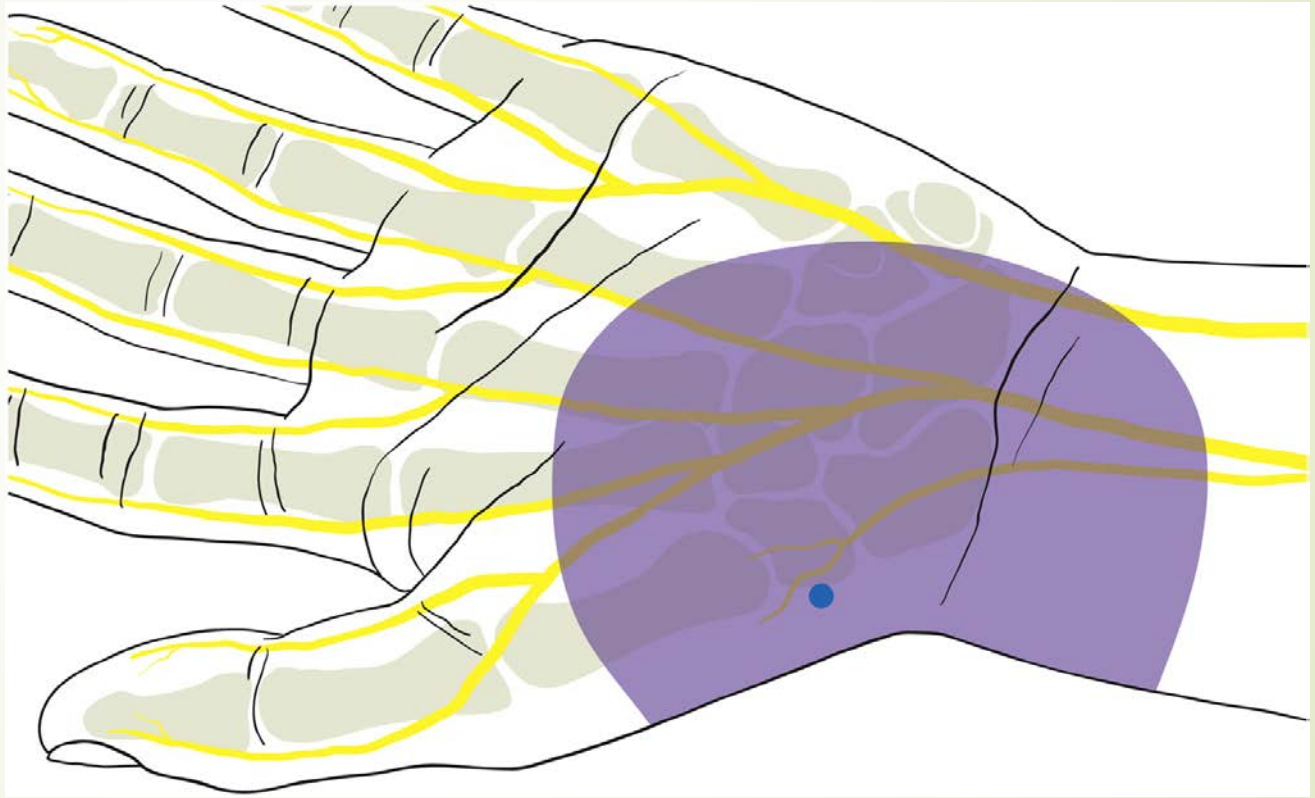


The arthroscopic patients were anesthetized using dorsal infiltration of lidocaine with epinephrine (20 mL) with an additional intra-articular 5 mL injection 30 minutes before surgery. The TFCC surgery patients received 40 mL of lidocaine with epinephrine around the ulnar aspect of the forearm, from 8-cm proximal to 3-cm distal to the distal radioulnar joint

Hagert E, **Lalonde DH**. Wide-Awake Wrist Arthroscopy and Open TFCC Repair. J Wrist Surg. 2012 ;1(1):55-60.

TRAPEZECTOMIE/F. DE BENNETT

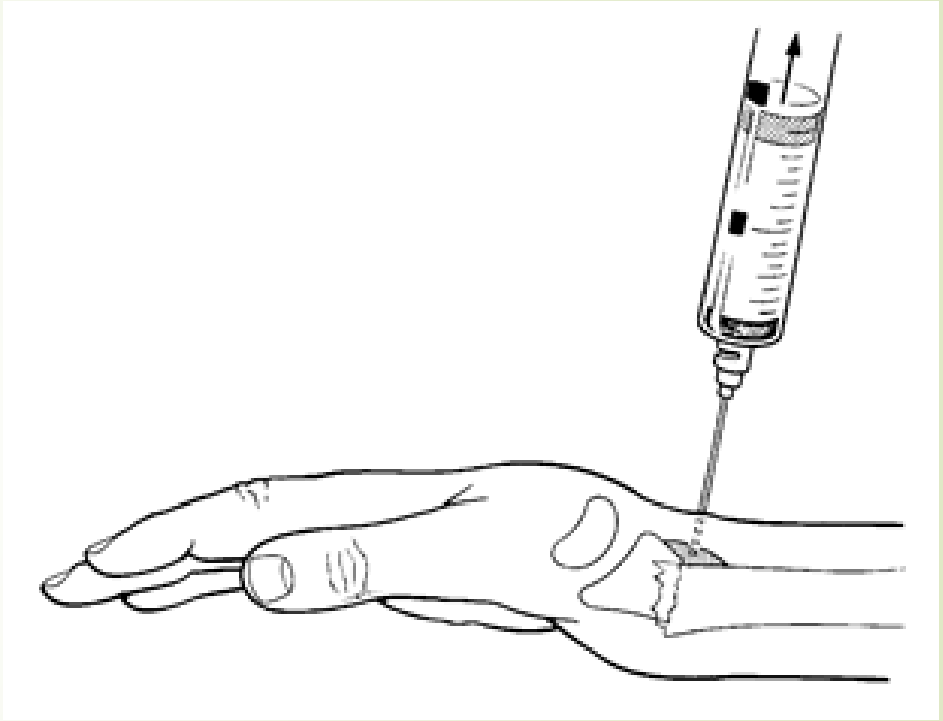
40 ml AL



ANESTHESIE INTRAFOCALE (HEMATOMA BLOCK)

lidocaine 1% 10-20 ml (2-3 mg/kg)

largement utilisée en UK et USA



Meinig RP, Quick A, Lobmeyer L. Plasma lidocaine levels following hematoma block for distal radius fractures. J Orthop Trauma. 1989;3(3):187-91
Sprot H, Metcalfe A, Odutola A, Palan J, White S.Management of distal radius fractures in emergency departments in England and Wales. Emerg Med J. 2013;30(3):211-3.

WALANT: Quels avantages ?

- **Pour le patient**

  Pas de sédation (monitored anesthesia care)

  Pas de garrot

  Pas de bloc moteur résiduel

  Analgésie post opératoire

  Meilleure compréhension de sa pathologie

  Meilleure gestion du risque

  « hyperambulatoire »

- **Pour l'opérateur**

  Contrôle peropératoire de la qualité de la réparation+++++

  -moins de rupture secondaire

  -moins de ténolyse secondaire

  Possibilité de choisir le mode de rééducation (passif vs actif précoce)

  Education du patient

- **Pour le payeur:** Pas encore notre problème……mais pour combien de temps encore?

Codding JL, Bhat SB, Ilyas AM. An Economic Analysis of MAC Versus WALANT: A Trigger Finger Release Surgery Case Study. Hand (N Y). 2017 Jul;12(4):348-351

- **“Pour la planète”: réduction des déchets médicaux (office surgery)**



WALANT: Quels inconvénients? Quels défits? Quelles limites?

- **Risque ischémique mais antidote**

  Contre indications: artériopathies? syndrome de Raynaud?

- **Changement des habitudes** :

  Adhésion du patient

  Adhésion du chirurgien

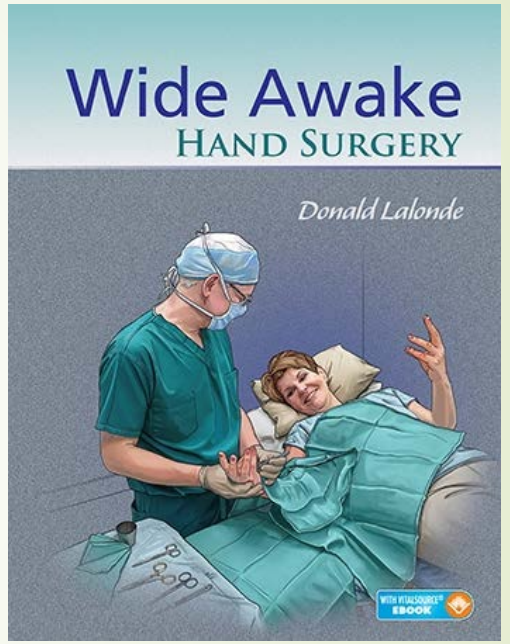
  Adhésion de l établissement de soins

  Nouvelle organisation et nouveau paradigme (cf chirurgie ambulatoire)

- **Une limite: reprise de Dupuytren**

Mais QUELLE PLACE POUR L'ANESTHESISTE?.....

WALANT……l’anesthésiste DOIT le connaitre, le comprendre pour se l’approprier



indications spécifiques possibles:

contre indication au garrot (fistule,drépanocytose)

pas d’échographe!

WALANT: Tsunami ?....
ou simple tempête dans un verre d'eau…?



