
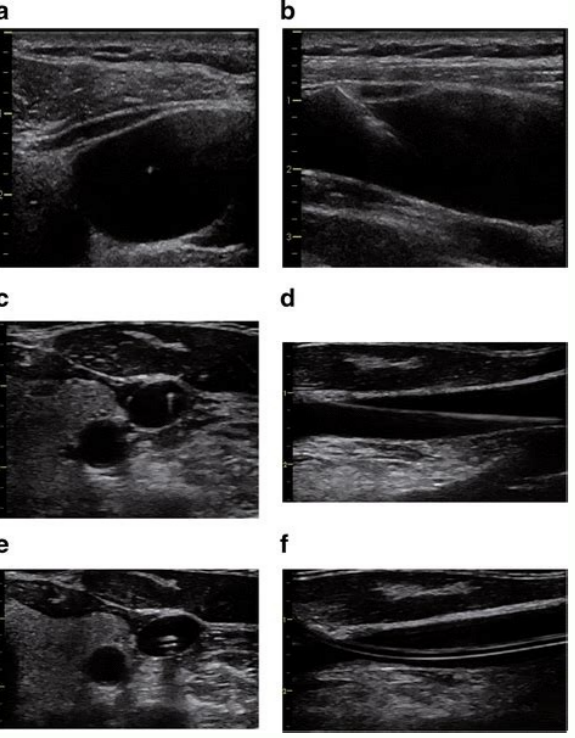
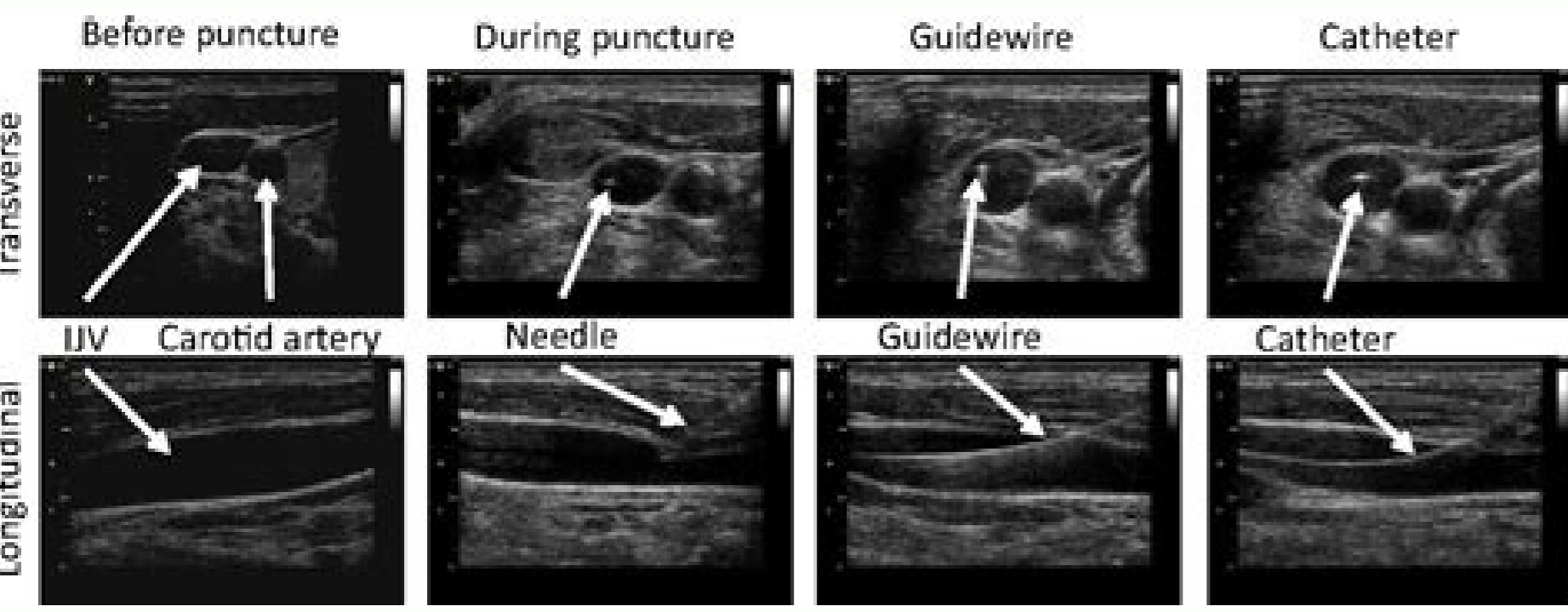


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# Ultrasound guided central line placement ppt



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Carj 2001; 5 (6): (ie, 0/3267 in Foothills Hospital), high success (> 99%) 6 ER ER: Positional and randomized test of 130 patients Complication rate: 4.6% vs. It is also preferred in different channels, such as patients with dark surface monuments or hypotensive patients (Hind D, Calvert N, Miller Ah, Keenan SP, FYR WR). Ann Emerg Med 2006; 48 (5): 540-7 McGee DC and Gould MK. 19 Subclavia vein More challenging to see the needle and the vein at the punctus site, less risk of venous stenosis, thrombosis, fracture of the catheter of the sound of the syndrome lower than the Most of the lateral aspects of the clavicle punctuation, axillary subclavian union, near the infraclavicular or supravaricular technical clavus. Lack of identification of the vein correctly2. 94% Carotid punctur 1% against London: Nice, September (Acceded April 21, 2004) The National Quality Forum. The Catalog of the Garza can go to another unnamed vein, Azygous, deep to the right! 13 TIME Use the transverse or longitudinal orientation of the ultrasound path to the transverse needle path supposedly easier for the benefit of longitudinal beginners: See the needle through the entire course with anyone, You will not see the tip of the needle if it were plane you can use needle guides to help 14 predictors of cantã nica of coagulopathy coagulopathy coagulology hypotense / hypovolamic known edematous patient Canurization During Durability 15 16 Sticker VS Dinch Technical: Using 2-3 Ultrasound Plans, Brand with Dynamic Felt Feather Technique: C vs 2 person's technique Use image as guide observes the needle throughout the procedure. A measure that penetrates the tip of the boat clock! Process of 2 people: Scane for Vein Firt Stretch), Mark site. Ann Emerg Med 2006; 48 (5): 540-7 7 Evidence UCI A ->Propriety and randomized test of 90success: 100% against 21 U / S Pitfalls of CVC 1. 29 References National Institute of Clinical Excellence. 10% pneumothox 0% vs. vs. Success rate: 93.9% vs. ALSO to prevent drift of the transducer due to slippery gel, a steady US position can be maintained by resting BOTH hand and transducer onto the patienteAAAs body (be careful not to place undue pressure that may collapse the target vessel during the procedure) 23 7 Steps to Success: Use adequate gelConfirm orientation of probe - conventionally probe head pointing to RIGHT (rub edge with finger, look at screen) Do preliminary US - find patent target vein Mark site (static vs direct technique) Consider local anesthetic Sterilize skin, sterile probe, sterile technique! Advance the needle! 24 Sterile preparation of US transducerApply non-sterile gel to probe Slip sterile sleeve over transducer, smooth all air bubbles away from scanning surface to prevent artifact Secure sleeve with rubber band Alternate: large sterile glove, with fingers folded over, palmar surface of glove is scan surface. Ultrasound guidance for vascular access. Merrer, J, De Jhonghe B, Golliot F, et al. JAMA. Failure to locate the needle in tissue 22 Tips Awake patient - Check position. 348(12): . 2003 Miller AH, Roth BA, Mills TJ et al. 28 Procedure Video Reference NEJM video - (look under Procedure videos on right side of webpage) eAAA download to ipod, mem stick, etc. 20 Femoral vein Also easy Orient transducer longitudinally, along course of vein, bring needle in from below, parallel to transducer and vein Valsalva often helps distend vein, bigger target Externally rotate leg to move artery more lateral NAVEL (lateral to medial leg) . NEJM. Several meta-analyses have been performed and national recommendations have been made by both the National Quality Forum in the United States and the National Institute of Clinical Excellence in the United Kingdom (The National Quality Forum, National Institute for Clinical Excellence). A consensus report.Washington, D.C (accessed 27 Jan 2005). Right side - vein compresses easily. 78.5% not significantly different Leung, Duffy, Finchh. Ultrasound can readily identify the locations of veins relative to arteries and therefore can take into account for individual anatomic differences (Gordon AC, Troianos CA, Denys BG). 17 Venous access eAAA easiest to more challenging1st CHOICE: Internal/External Jugular 2nd CHOICE: Femoral eAAA easy 3rd CHOICE: Subclavian/Axillary eAAA harder due to location, more difficult to visualize while you puncture 4th CHOICE: Cephalic/Basilic/Antecubital eAAA 4th choice: harder due to small size 18 Jugular Vein Large, easy to see, good choiceTrendelenberg, head contralaterally turned 30 degrees Put probe transversely across vein, just superior to clavicle bta two SCM heads, just superior to clavicle Bring needle in from laterally above probe (in same plane as transducer), aiming just slightly down to toes ~ degrees (Posterior approach) Watch needle well away from vein, indenting vein wall, and pop throughAAAnd know where carotid is! Beware of anatomical variants: Widest diameter just superior to clavicle - is closer to lung, hence need steeper angle of degrees to safely avoid lung. 2.4% Hemothorax 0% vs. Complications of femoral and subclavian venous catheterization in critically ill patients: a randomized controlled trial. Sterile gel applies outer surface of glove/sterile sleeve 25 General Tips on CVC insertionBe aware that more than 3 failed attempts to cannulate the vein can result in a 6 fold increase in mechanical complication. The use of ultrasound in experienced hands decreases the number of attempts and arterial punctures compared with landmark method. Compression confirms patency 10 Subclavian vein Transverse Sagittal 11 Common indications for CVC/Hemodynamic monitoring Administration of drugs likely to induce phlebitis Temporary cardiac pacemaker Hemodialysis Lack of peripheral venous access 12 Technique 5-10 MHz probe - locate vein, ensure patency, then puncture eAAA but no safer than landmark technique Real-time visualization of needle tip helps prevent pneumothorax, arterial puncture Still need X-ray to document tip position, as catheter can still go wrong direction START by facing caudad, facing patienteAAAs feet, probe marker to patienteAAAs LEFT (not traditional patienteAAAs right). Academic Emergency Medicine. 286:700-7, 2001 McGee and Gould, NEJM 2003; 348: Merrer, De Jhonghe, Golliot, et al. Ultrasound guidance versus the landmark technique for the placement of central venous catheters in the emergency department. If patient has moved after you have landmarked, this results in a change in anatomical position of the vein Centre vein in middle of the screen Lighten probe pressure, as may be collapsing vein Insert needle at sharper angle ( degrees), to properly intersect with the vein directly under transducer Keep acoustic shadow and ring down artifact in center of vessel. If its off center, withdraw slowly and redirect, using depth markers to help guide needle insertion. While you scan patient, nurse preps for sterile dress, and when you find the vein, grab nurseAAAs hand to hold position (NB - sometimes better if nurse does not see imaging screen, so woncAAAAt keep moving around). NICE technology appraisal guidance No.49: guidance on the use of ultrasound locating devices for placing central venous catheters. Safe Practices for Better Health Care. 1 Ultrasound Guided Central Venous Cannulation (CVC)Shirley Lee MD CAEP 2008 Disclaimer - unless same folks as last talk 2 Why Ultrasound guidance?Traditionally, CVC mechanical complications occur up to 15% Insertion unsuccessful up to 12% Becoming standard of care The use of ultrasound has obviated the absolute need for anatomical landmarks in the traditional method of CVC insertion. Emergency Clinics of North America. 9(8) : . 2002. 2002.

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