Peripherally Inserted Central Venous Catheters

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Percutaneously inserted central venous catheters (PICCs) have become the standard of care for long-term vascular access, both for in-hospital patients and outpatients. Indeed, PICCs have gained increasing popularity in the critical care and perioperative setting in recent years. Thanks to ultrasound-guided insertion techniques, PICCs provide central venous access at a cost near to peripheral venipuncture. Current tip-tracking technology allows precise tip positioning at the bedside without the need for fluoroscopy. For these reasons, bedside PICC insertion is gaining interest within the anesthesiology community and is foreseen as soon becoming part of the anesthesiologist's regular armamentarium.

Peripherally Inserted Central Venous Catheters offers a complete state-of-the-art review on all aspects of PICC insertion and management, from the history of venous access to the psychosocial impact and medicolegal implications. The book is edited by two surgical oncologists from the University of Turin, Italy who have been leading several popular international courses and conferences on this topic. The aim of the text is to provide an in-depth analysis of each aspect of care related to PICCs, and although the final result is a rich compendium, the reader must often sort through an abundance of unprocessed information in order to reach the relevant points.

That being said, the book is divided into 15 chapters assigned to a variety of international authors – mostly from Italian institutions – as well as some industry representatives. A thorough historical overview of

vascular access is the topic for the opening chapter. This is followed by a very technical discussion on catheter technology and materials, including a helpful review of the biochemical basis of phlebitis. Chapter 3 is the first of a series of three chapters on indications of PICC insertion, and it offers an introduction to the “proactive” approach to venous access for best patient outcome, as theorized by P. Blackburn. Chapter 12 completes the block of chapters on indications and clinical decision-making.

As a group, Chapters 6–8 and 11 constitute a practical handbook on PICC insertion and troubleshooting. Chapters 6 and 7 present a step-by-step guide for vein selection, ultrasound scanning, and catheter positioning using different navigational devices. Numerous diagrams and images of a complete series of real clinical scenarios and state of the art equipment complement the well-written text. Chapter 8 comprises a very practical and comprehensive guide to the diagnosis and management of PICC occlusions, though Chapter 11 is of questionable practical value.

Chapters 9 and 10 provide a comprehensive review of PICC complications, including an up-to-date literature review on PICC infection and vein thrombosis. Chapter 13 is dedicated to the often underestimated aspect of psychological implications and offers a very detailed well-referenced analysis of vascular access in the oncological patient. Medicolegal concerns related to PICCs, including the need for informed consent and physician supervised vs independent nurse-led teams, are also discussed. Chapter 14 may have limited relevance for North American readers, however, as it comprises a detailed review of the theory of medical malpractice in Italy.

A well-written comprehensive review of the PICC team completes this book. All relevant aspects of PICC team

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creation, training, economics, and productivity are included through a useful evidenced-based analysis and exemplified policies.

The textbook chapters vary considerably in length, style, structure, iconography, and language. The same topic, e.g., the history of PICCs, is included in the introduction of more than one chapter, and no cross-referencing among chapters is used in the book. As a result, the text appears as a collection of individual reviews rather than as a homogeneous editorial work. Readability of the text is also highly variable and is affected by frequent suboptimal translations.

Chapter styles range from literature reviews supported by an extensive bibliography (Chapter 9) to case discussions (Chapter 3) and practical step-by-step guides (Chapters 6 and 7). Summary tables and a common format for all tables could have facilitated a common thread for all chapters.

The artwork in the textbook does not follow a common template and varies in quality. Although there is some original artwork, the image resolution in the previously published material is extremely inconsistent, and the printed colours likely distort the original.

Images throughout the text include an extensive collection of original clinical cases, with good examples

of navigational devices and a complete array of ultrasound images. The latter, however, include digital screenshots taken with non-professional cameras at variable angles. While most authors edited the images to mask the ultrasound manufacturers' trademarks, this does not apply to all. While irrelevant for ultrasound scanning, references to specific manufacturers would have been useful when discussing specific tip navigation technology. One distinct shortcoming of the book is the lack of additional media, as some of the more practical chapters on PICC insertion and positioning would have clearly benefitted from additional online videos.

In summary, *Peripherally Inserted Central Venous Catheters* constitutes a good reference founded on an evidence-based approach to PICC insertion and management. This multilayered work suits the needs of a variety of different readers. Although not immediately apparent, certain groups of chapters within this in-depth theoretical yet comprehensive review may offer valuable and practical step-by-step guidance on this interesting topic.

Conflicts of interest None declared.