

LA STORIA DEI 'PORT BRACHIALI' E COSA SI INTENDE INVECE OGGI PER 'PICC-PORT'

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LA STORIA DEI PORT BRACHIALI INIZIA MOLTO TEMPO FA (30 ANNI FA!)

- Ed inizia – ovviamente – con materiali e metodologie del secolo XX:
 - Venipuntura delle vene visibili/palpabili nella fossa antecubitale
 - Impianto del *reservoir* nell'avambraccio o subito sopra la piega del gomito
 - Controllo della posizione della punta con Rx Torace dopo la procedura

1990-1999



Starkhammar 1990 Svezia

- Easy and safe to implant with a high success rate and a low complication rate. Well accepted by patients and nurses. Advantageous in patients unsuitable for chest port.



Andrews 1990 USA

- Viable alternative for patients requiring long-term central venous access.



Winters 1990 USA

- No infiltrations or extravasations. Nurses found performance similar to the standard venous chest ports. Well accepted by patients.

1990-1999



Kahn 1992 USA

- No clinically apparent venous thrombotic complications and only one device-related infection. The cost and risk of complication are less than those for a surgically placed chest wall port, and the cosmetic result is excellent.



Reinberg 1992 Svizzera

- It is an interesting alternative to chest port for children older than 5 years of age. It is easily accepted by the patient as well as by the caring team.



Carré 1994 Spagna

- Easy to implant and to maintain in the arm and well tolerated by the patients.

1990-1999



Lundberg 1995 Svezia

- safe alternative to chest-placed port



Schuman 1995 USA

- Highly successful in our experience. Well accepted by the patients and nursing staff.



Kaufman 1996 USA

- Good long-term results



Cunningham 1996 USA

- Although the rate of immediate insertion-related complications was low, the incidence of deep venous thrombosis was markedly increased over that reported with chest ports.

1990-1999



Hills 1997 USA

- Excellent outcome and very low procedural complication rate. Very low incidence of both immediate and long-term complications.



Lyon 1999 Francia

- Complication rates compared favorably to chest port.



Lersch 1999 Germania

- No serious or life-threatening complications.



Whigham 1999 USA

- Catheter occlusion is a common complication

Central Venous Access

Experience with 100 Consecutive Central Venous Access Arm Ports Placed by Interventional Radiologists¹

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John F. Cardella, MD
Kay Cardella, RN, BSN
Peter N. Waybill, MD

Index terms: Catheters and catheterization, central venous access • Catheters and catheterization, complications • Catheters and catheterization, technology

JVIR 1997; 8:983-989

PURPOSE: This study reports the authors' experience with long-term follow-up of 100 consecutive peripherally inserted, subcutaneous arm ports for central venous access.

MATERIALS AND METHODS: One hundred patients with subcutaneous arm ports inserted by interventional radiologists were retrospectively studied. Data were collected from the patients' medical records and from telephone canvassing. Using each insertion period as an observation, the complication rates per 100 catheter days were determined with 95% confidence intervals (CIs).

2000-2018

- Siamo nel XXI secolo, ma le grandi novità dell'accesso venoso (puntura ecoguidata e tip location mediante ECG intracavitario) non arrivano ai port brachiali, il cui utilizzo si concentra in Europa e in Giappone
 - Posizionamento in sala radiologica
 - Puntura 'blind' di vene visibili/palpabili oppure puntura sotto guida fluoroscopia previa venografia (!)
 - Tip location intraprocedurale mediante fluoroscopia

2000-2018



Bodner 2000 USA

- safe and as effective as chest ports.



Burbridge 2000 Canada

- relatively safe and effective



Marcy 2002 Francia

- Indicated for breast cancer, previous arm or cervical venous thrombosis, morbid obesity, respiratory insufficiency, previous surgical failure and irradiated neck

2000-2018



Marcy 2005 – 2007 - 2008 Francia

- Higher success rate, higher cosmetic results but high cost (radiology placement). Ideal in anxious patients who fear surgery, in case of previous cervico-thoracic irradiation or upper extremity venous thrombosis, or in patients at risk of respiratory insufficiency.
- Frequent technical failures caused by the inability to perform an arm venogram or to catheterize the brachial vein
- Safe, effective, and well tolerated in oncology patients
- No need of heavy sedation, low venous thrombosis rate



Available online at www.sciencedirect.com



EJSO
the Journal of Cancer Surgery

EJSO 34 (2008) 1262–1269

www.ejsoc.com

A comparison between distal and proximal port device insertion in head and neck cancer

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Accepted 10 September 2007
Available online 5 November 2007

2000-2018



Kawamura 2008 Giappone

- Excellent short-and long-term outcomes. Good alternative to central venous ports



Sonobe 2009 Giappone

- Can be employed for long-term use for chemotherapy and parenteral nutrition



Akahane 2010 Giappone

- Adverse events are more frequent in arm port than in chest port; thus, the arm port is not recommended as the first choice

ORIGINAL ARTICLE

Junichiro Kawamura · Satoshi Nagayama
Akinari Nomura · Atsushi Itami · Hiroshi Okabe
Seiji Sato · Go Watanabe · Yoshiharu Sakai

Long-term outcomes of peripheral arm ports implanted in patients with colorectal cancer

CLINICAL INVESTIGATION

Subclavian Vein Versus Arm Vein for Totally Implantable Central Venous Port for Patients with Head and Neck Cancer: A Retrospective Comparative Analysis

Akio Akahane · Miyuki Sone · Shigeru Ehara ·
Kenichi Kato · Ryoichi Tanaka · Tatsuhiko Nakasato

Title	Use of totally implantable central venous access port via the basilic vein in patients with thoracic malignancies.
Author(s)	Sonobe, Makoto; Chen, Fengshi; Fujinaga, Takuji; Sato, Kiyoshi; Shoji, Tsuyoshi; Sakai, Hiroaki; Miyahara, Ryo; Bando, Toru; Okubo, Kenichi; Hirata, Toshiki; Date, Hiroshi
Citation	International journal of clinical oncology / Japan Society of Clinical Oncology (2009), 14(3): 208-212
Issue Date	2009-06

2000-2018



Goltz 2012 Germania

- High success rates, low rates of complications if implanted with fluoroscopic guidance.



Busch 2012 Germania

- Radiologic placement is safe - low rate of both early and late complications.



Ide 2013 Giappone

- Safe implantation



Shiono 2014 Giappone

- May benefit clinicians and patients in terms of safety and comfort

Upper Arm Central Venous Port Implantation: A 6-Year Single Institutional Retrospective Analysis and Pictorial Essay of Procedures for Insertion

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2000-2018



Klosges 2015 Germania

- Safe alternative to chest ports in female oncology patients. Risk of skin dehiscence and catheter occlusion, especially when used for long-term treatment.



Wildgruber 2015 Germania

- Simple and safe procedure with a low rate of early and late complications



Zhonghua 2015 Cina

- low post-procedural long-term complication rates

2000-2018



Burbridge 2016 Canada

- No negative impact on satisfaction and quality of life.



Fonseca 2016 Brasile

- Low intraoperative risk and similar rates of early postoperative complications when compared to chest ports. The patients were satisfied with the device and would recommend the procedure to others.



Mori 2016 Giappone

- Good long-term outcome, with complication rates comparable to those of chest ports



JVA

ISSN 1129-7298

J Vasc Access 2016; 17 (6): 527-534

DOI: 10.5301/jva.5000609

ORIGINAL RESEARCH ARTICLE

Quality-of-life assessment: arm TIVAD versus chest TIVAD

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²Department of Diagnostic Radiology, Regina General Hospital, Regina, Saskatchewan - Canada

Int J Clin Oncol (2016) 21:474–482

DOI 10.1007/s10147-015-0917-1



ORIGINAL ARTICLE

A retrospective analysis on the utility and complications of upper arm ports in 433 cases at a single institute

Yukiko Mori¹ · Satoshi Nagayama² · Jun-ichiro Kawamura² · Suguru Hasegawa² ·
Eiji Tanaka² · Hiroshi Okabe² · Megumi Takeuchi³ · Makoto Sonobe⁴ ·
Shigemi Matsumoto¹ · Masashi Kanai¹ · Manabu Muto¹ · Tsutomu Chiba^{1,5} ·
Yoshiharu Sakai²

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2000-2018



Busch 2017 Germania

- Frequent catheter rupture (silicone catheters!)



Burbridge 2018 Canada

- No difference in port-related complication occurrence or complication-related removal when compared with chest ports



Voci 2018 USA

- Most patients are conscious of their port scars and if offered the choice choose placement in the arm rather than the chest.

Breast Cancer Research and Treatment
<https://doi.org/10.1007/s10549-018-4790-2>

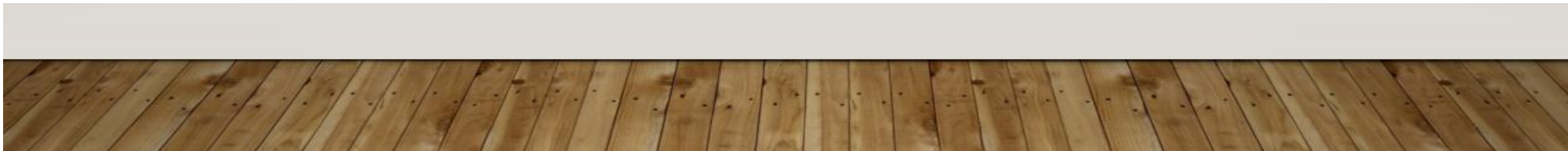
CLINICAL TRIAL



Impact of port site scar on perception of patients with breast cancer: patient-reported outcomes

Amy Voci¹ · David Lee¹ · Emily Ho^{1,2} · Rebecca Crane-Okada¹ · Maggie DiNome^{1,2} 

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TRA IL 2002 E IL 2020, QUATTRO STUDI CONFRONTANO PORT BRACHIALIVS. CHEST PORT

- Kuriakose 2002
- Tippit 2016
- Li 2019
- Liu 2020

2002: COMPARED TO CHEST PORTS, PERIPHERAL PORTS ARE ASSOCIATED WITH A SIGNIFICANTLY HIGHER INCIDENCE OF THROMBOSIS

Comparative Study > J Vasc Interv Radiol. 2002 Feb;13(2 Pt 1):179-84.

doi: 10.1016/s1051-0443(07)61936-8.

Risk of deep venous thrombosis associated with chest versus arm central venous subcutaneous port catheters: a 5-year single-institution retrospective study

Philip Kuriakose ¹, Gerardo Colon-Otero, Ricardo Paz-Fumagalli

Affiliations + expand

PMID: 11830624 DOI: 10.1016/s1051-0443(07)61936-8

2019: IMPLANTATION OF ARM PORTS AS OPPOSED TO CHEST PORTS MAY BE ASSOCIATED WITH A HIGHER RATE OF THROMBOSIS IN PATIENTS WITH BREAST CANCER

Upper-Extremity Deep Vein Thrombosis in Patients With Breast Cancer With Chest Versus Arm Central Venous Port Catheters

Danielle Tippit¹, Eric Siegel², Daniella Ochoa³, Angela Pennisi⁴, Erica Hill³, Amelia Merrill³, Mark Rowe³, Ronda Henry-Tillman³, Aneesha Ananthula¹ and Issam Makhoul⁴

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Volume 12: 1–10

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DOI: 10.1177/1178223418771909



2019: ARM PORT IS ASSOCIATED WITH HIGHER PROCEDURE CONVERSION RATE, BUT LOWER INCIDENCE OF INTRA-OPERATIVE COMPLICATIONS,

Cancer Management and Research

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

Arm port vs chest port: a systematic review and meta-analysis

This article was published in the following Dove Press journal:
Cancer Management and Research

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Junmeng Zheng¹

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*These authors contributed equally to this work

Background: Two prevailing, totally implantable venous access ports are routinely utilized in oncology: chest port or arm port. This systematic review with meta-analysis was conducted to compare safety and efficiency of the two techniques.

Methods: We performed evidence acquisition intensively from PubMed, Embase, and Cochrane Library. Available comparative studies that evaluated both techniques were identified. The outcomes of interest included total complication events, procedure-related infections, thrombosis, intra-operative complications, mechanical complications, conversion rate, early port removal, and operating time.

Results: Thirteen comparative studies including 3,896 patients (2,176 for chest ports, and 1,720 for arm ports) were identified. The present study showed that arm port was associated with higher procedure conversion rate (2.51% in chest port group and 8.32% in arm port group; odd ratios [OR] 0.27, 95% confidence interval [CI] 0.15-0.46; $p<0.001$), but lower incidence of intra-operative complications (1.38% in chest port group and 0.41% in arm port group; OR 2.38, 95% CI 1.07-5.29; $p=0.03$). There were no between-group differences with respect to total complication events, procedure-related infections, thrombosis, mechanical complications, early port removal, and operating time. Subgroup analysis of patients under 60 years revealed that no significant difference was detected in intra-operative events (1.19% in chest port group and 0.02% in arm port group, OR 2.59, 95% CI 0.74-9.08; $p<0.14$), indicating that age may be a risk factor for intra-operative events. Sensitivity analysis did not change conclusions of all endpoints of interest.

Conclusion: Arm port is associated with higher procedure conversion rate, but lower incidence of intra-operative complications, and age may be a risk factor for intra-operative events.

Keywords: chest port, arm port, total implantable venous access port, systematic review, meta-analysis

2020: THE ARM PORT MIGHT INCREASE THE RISK OF OVERALL COMPLICATIONS AS WELL AS THE RISK OF THROMBOSIS COMPARED WITH THE CHEST PORT.

Hindawi
BioMed Research International
Volume 2020, Article ID 9082924, 8 pages
<https://doi.org/10.1155/2020/9082924>

Review Article

Comparison between Arm Port and Chest Port for Optimal Vascular Access Port in Patients with Breast Cancer: A Systematic Review and Meta-Analysis

Ye Liu ¹, **Li-li Li**,¹ **Lei Xu**,¹ **Dong-dong Feng** ¹, **Yu Cao** ¹, **Xiao-yun Mao**,¹ **Jin Zheng**,²
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QUINDI, IL PORT BRACHIALE AVEVA VANTAGGI E SVANTAGGI

VANTAGGI

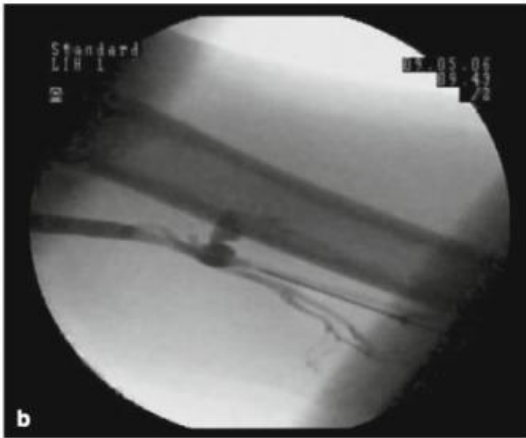
- Basso rischio di complicanze durante la inserzione; buon risultato cosmetico; minore ansietà e maggiore soddisfazione del paziente; unica soluzione in situazioni in cui il port toracico è controindicato

SVANTAGGI

- Alto costo di inserzione (fluoroscopia), aumentato rischio di trombosi (nessuna valutazione del diametro della vena; tip location imprecisa; mobilità del catetere al gomito), maggior rischio di occlusione (kinking del catetere al gomito), frequenti insuccessi nella incannulazione della vena (incannulazione senza ecoguida)



PORT BRACHIALI



NEL 2019-2020 COMPAIONO I PRIMI STUDI SUI PICC-PORT

- Ovvero: **Port Brachiali inseriti secondo la metodologia/tecnologia dei PICC**
 - Studio ecografico pre-procedurale delle vene del braccio
 - Scelta della vena appropriata al calibro del catetere
 - Venipuntura ecoguidata delle vene profonde del braccio
 - Utilizzo di kit di micropuntura con metodo Seldinger modificato
 - Tip navigation mediante ecografia
 - Tip location intraprocedurale preferibilmente mediante ECG intracavitario

2019 PICC-PORT



Original research article

JVA | The Journal of
Vascular Access

Implanting totally implantable venous access ports in the upper arm is feasible and safe for patients with early breast cancer

Haiping Xu*, **Rui Chen***^{ID}, **Chaojun Jiang**, **Sainan You**,
Qiannan Zhu, **Yan Li**, **Shuo Li**, **Xiaoming Zha**^{ID} and **Jue Wang**

The Journal of Vascular Access
1–6
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DOI: 10.1177/1129729819894461
journals.sagepub.com/home/jva
 SAGE

2019 PICC-PORT



The Art and Science of Infusion Nursing

A Comparison of 2 Venous Puncture Sites for Peripheral Implanted Ports

Theodoros Katsoulas, PhD, MSc, RN ● Maria Kapritsou, PhD, MSc, RN ●
Evan Alexandrou, PhD, MPH, RN, ICU Cert ● Maria Bastaki, PhD, MSc, RN ●
Margarita Giannakopoulou, PhD, BSc, RN ● Panagiotis Kiekkas, PhD, MSc, RN ●
Emmanouil Stafylarakis, MSc, BSc, RN ● Evangelos A. Konstantinou, PhD, MSc, BSN, RN

ABSTRACT

The use of peripheral implanted ports to administer parenteral nutrition in a number of patient cohorts is increasingly seen as a safe alternative to chest ports with equivalence in long-term outcomes. Two insertion sites on the upper arm were compared using the zone insertion method (ZIM), which was developed as an approach to optimize and reduce catheter-related exit site complications. The ZIM divides the medial upper arm into 3 main colors, red, green, and yellow, which are based on musculoskeletal, skin, and vessel characteristics. The optimal exit site is considered to be the green zone, the middle third of the upper arm. Thirty-five patients were allocated to vein puncture at the yellow/green zone (group A) and 35 patients at the yellow zone near the axilla (group B). All devices were implanted in the distal green zone. Successful peripheral port implantation was 91.4% (n = 35) for group A and 100.0% (n = 35) for group B ($P = .07$). No procedural or postprocedural complications were observed.

Key words: arm port, chest port, implanted port, peripheral, PICC, vascular access, zone insertion method

2020 PICC-PORT



International Journal of Surgery Case Reports 68 (2020) 63–66



Contents lists available at [ScienceDirect](#)

International Journal of Surgery Case Reports

journal homepage: www.casereports.com



PICC-PORT: Valid indication to placement in patient with results of extensive skin burns of the neck and chest in oncology. The first case in the scientific literature



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2020 PICC-PORT



Original research article

PICC-PORT totally implantable vascular access device in breast cancer patients undergoing chemotherapy

**Sergio Bertoglio^{1,2} , Ferdinando Cafiero², Paolo Meszaros³,
Emanuela Varaldo^{1,2}, Eva Blondeaux⁴, Chiara Molinelli⁴ and
Michele Minuto^{1,2}**

JVA | The Journal of
Vascular Access

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2020, Vol. 21 (4) 460–466
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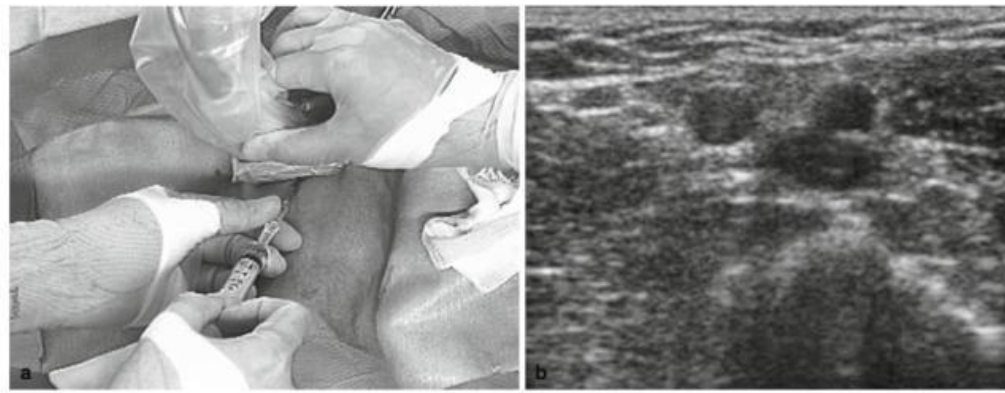
SUBMITTED TO JOURNAL OF VASCULAR ACCESS



A multicenter retrospective study on 4,480 implanted PICC-ports: a GAVeCeLT project.

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INSERZIONE DEI PICC-PORT



PICC-PORT

- **Medesimi vantaggi dei port brachiali, ma senza i loro svantaggi**
- I PICC-port infatti sono caratterizzati non soltanto dalla assenza di complicanze maggiori alla inserzione, da migliori risultati cosmetici e da miglior *compliance* del paziente, ma anche da:
 - 100% di successo nella puntura/incannulamento della vena
 - Minimo rischio di malposizioni
 - Basso rischio infettivo e trombotico (non differente rispetto ai port toracici)
 - Basso rischio di malfunzionamenti
 - Basso costo di inserzione

TAKE HOME MESSAGE

- Chiamiamoli PICC-port !!!
- La differenza tra i port brachiali tradizionali e i PICC-port è analoga alla differenza tra i PICC del XX secolo (dispositivo di nicchia, con alta % di insuccesso e complicanze) e i PICC del XXI secolo (dispositivo di prima scelta, sicuro e costo-efficace nella stragrande maggioranza dei pazienti)

Grazie dell'attenzione

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www.gavecelt.it

Gemelli



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