EISSN 1305-3612

Diagnostic and Interventional Radiology

VOLUME 27 ISSUE 2 MARCH-APRIL 2021



dirjournal.org



Official Journal of the Turkish Society of Radiology

EISSN 1305-3612 www.dirjournal.org

Editor in Chief

Mustafa Seçil, MD 🕞

Department of Radiology, Dokuz Eylül University School of Medicine, İzmir, Turkey

Section Editors and Editorial Board

Abdominal Imaging

Mehmet Ruhi Onur, MD <a>b Department of Radiology, Hacettepe University School of Medicine Hospital, Ankara, Turkey

Bengi Gürses, MD p Department of Radiology, Koç University School of Medicine, İstanbul, Turkey

Artificial Intelligence and Informatics

Barış Türkbey, MD D Molecular Imaging Program, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, USA

Breast Imaging

Mustafa Erkin Arıbal, MD D Clinic of Radiology, Acıbadem Altunizade Hospital, İstanbul, Turkey

Cardiovascular Imaging

Uğur Bozlar, MD b Department of Radiology, University of Health Sciences Gülhane Training and Research Hospital, Ankara, Turkey

Interventional Radiology

Cüneyt Aytekin, MD 💿 Department of Radiology, Başkent University School of Medicine Hospital, Ankara, Turkey

Barbaros Çil, MD 💿 Department of Radiology, Koç University School of Medicine, İstanbul, Turkey

İlker Ercan, PhD 💿 Department of Biostatistics, Uludağ University School of Medicine, Bursa, Turkey Ramazan Kutlu, MD p Department of Radiology, İnönü University School of Medicine, Malatya, Turkey

Musculoskeletal Imaging

Hatice Tuba Sanal, MD Department of Radiology, University of Health Sciences Gülhane Training and Research Hospital, Ankara, Turkey

Neuroradiology and Head & Neck Imaging Kubilay Aydın, MD 💿

Department of Radiology, İstanbul University School of Medicine, İstanbul, Turkey

Nafi Aygün, MD 💿 Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA

Osman Kızılkılıç, MD D Department of Radiology, İstanbul University-Cerrahpaşa Cerrahpaşa School of Medicine, İstanbul, Turkey

Nuclear Medicine

A. Cahid Civelek, MD Department of Radiology and Nuclear Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, USA

Pediatric Imaging

Murat Kocaoğlu, MD D Department of Radiology, Cincinnati Children's Hospital Medical Center, Ohio, USA

Korgün Koral, MD D Department of Radiology, University of Texas Southwestern Medical Center, Dallas, TX, USA

Biostatistical Consultants

Mutlu Hayran, MD, PhD D Hacettepe University Cancer Institute, Ankara, Turkey

Diagnostic and Interventional Radiology (Diagn Interv Radiol) is a bimonthly periodical of the Turkish Society of Radiology and the content of the journal is available at http://www.dirjournal.org/ eng/Anasayfa It is peer-reviewed and adheres to the highest ethical and editorial standards. The editors of the journal endorse the Editorial Policy Statements Approved by the Council of Science Editors Board of Directors (www.councilscienceeditors.org/services/ draft_approved.cfm). The journal is in compliance with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals published by the International Committee of Medical Journal Editors (updated December 2014, www.icmje.org).

First ten volumes of Diagnostic and Interventional Radiology have been published in Turkish under the name of Tanısal ve Girişimsel Radyoloji (Index Medicus® abbreviation: Tani Girisim Radyol), the current title's exact Turkish translation.

© All rights of the articles published in Diagnostic and Interventional Radiology and displayed online at www.dirjournal. org are reserved by the Turkish Society of Radiology.

Diagnostic and Interventional Radiology is indexed in SCI Expanded, PubMed/MEDLINE, TUBITAK ULAKBIM TR Index, DOAJ, HINARI, EMBASE, Scopus.

Copyediting Beril Tavşanlı Sili, PhD

Publication Services AVES, İstanbul, TR

Contact Information

Diagnostic and Interventional Radiology Turkish Society of Radiology Hoşdere Cad., Güzelkent Sok., Çankaya Evleri, F/2, 06540 Ankara, Turkey E-mail info@dirjournal.org Phone +90-312-4423653 Fax +90-312-4423654

Turkish Society of Radiology is one of the foremost medical specialty organizations in Turkey. It was formed by the merger of the two main radiology societies of Turkey, one of which was founded in 1924. The Society is based in Ankara, Turkey.





Overview

Diagnostic and Interventional Radiology (Diagn Interv Radiol) is a medium for disseminating scientific information based on research, clinical experience, and observations pertaining to diagnostic and interventional radiology. The journal is the double-blind peer-reviewed, international, bimonthly, open-access publication organ of the Turkish Society of Radiology. Diagnostic and Interventional Radiology is currently indexed by Science Citation Index Expanded (2016 IF: 1.892) and PubMed MEDLINE.

Editorial and publication processes of the journal are shaped in accordance with the guidelines of the international organizations such as the International Committee of Medical Journal Editors (ICMJE), the World Association of Medical Editors (WAME), the Council of Science Editors (CSE), the Committee on Publication Ethics (COPE), and the European Association of Science Editors (EASE).

Statements or opinions expressed in the manuscripts published in *Diagnostic and Interventional Radiology* reflect the views of the author(s) and not the opinions of the editors, the editorial board, or the publisher; the editors, the editorial board, and the publisher disclaim any responsibility or liability for such materials. The final responsibility in regard to the published content rests with the authors.

Submitting manuscripts

- Authors should submit manuscripts using the online peer review system that can be accessed through the DIR web site (www.dirjournal.org) or using the direct link at https://mc04.manuscriptcentral.com/dir.
- Detailed DIR Author Guidelines can be viewed or downloaded from DIR web site (www.dirjournal.org).
- Diagnostic and Interventional Radiology requires authors to submit an Authorship Contributions Form during the initial submission which is available for download through the journal's web page.
- Submitted manuscripts should be original contributions; they should not contain any previously published data or be under consideration by another journal.

Instructions to Authors

- Authors are required to make a full statement at the time of submission about all prior reports and submissions that might be considered duplicate or redundant publication and mention any previously published abstracts for meeting presentations that contain partial or similar material in the cover letter.
- Authors must obtain written permission from the copyright owner to reproduce previously published figures, tables, or any other material in both print and electronic formats and present it during submission.

You may find checklists here: DIR Submission Checklist

DIR Biostatistical Reporting Guideline

Copyright transfer

Diagnostic and Interventional Radiology requires each submission to be accompanied by a Copyright Transfer Form which can be downladed from http:// www.dirjournal.org. By signing the copyright agreement, the authors hand over the copyright of their work to the Turkish Society of Radiology. In case of a rejection decision, copyright of the manuscript will be returned to the authors.

Conflict of interest disclosure

Diagnostic and Interventional Radiology requires and encourages the authors and the individuals involved in the evaluation process to disclose any existing or potential conflicts of interests including financial, consultant, institutional, and other relationships that might lead to bias or a conflict of interest. Each contributing author is required to electronically fill in the ICMJE Form for Disclosure of Potential Conflicts of Interest (available at www.icmje.org) and the forms must be submitted during the initial submission.

Initial evaluation and the peer review process

Manuscripts submitted to *Diagnostic and Interventional Radiology* will first go through a technical evaluation process where the editorial office staff will ensure that the manuscript is prepared and submitted in accordance with the journal's guidelines. Submissions that do not conform to the journal's guidelines will be returned to the submitting author with technical correction requests. All submissions are screened by a similarity detection software (iThenticate by CrossCheck), and those with an overall similarity index of greater than 20%, or duplication rate at or higher than 5% with a single source are returned to the authors without further evaluation along with the similarity report.

Manuscripts meeting the requirements mentioned in journal's guideline will go under the review process. The initial review will be performed by Editor-in-Chief and the Section Editor, which include the evaluation of the manuscript for its originality, importance of the findings, scientific merit, interest to readers and compliance with the policy of the journal in force. Manuscripts with insufficient priority for publication are not sent out for further review and rejected promptly at this level to allow the authors to submit their work elsewhere without delay.

Manuscripts that pass through the initial review are sent to peer review, which is performed in a blinded manner by least two external and independent reviewers. During the review process, all original articles are evaluated by at least one senior consultant of statistics for proper handling and consistency of data, and use of correct statistical method. The Section Editor and / or Editor-n-Chief are the final authority in the decision-making process for all submissions.

Permissions and reprints

Turkish Society of Radiology handles all requests to reproduce material from *Diagnostic and Interventional Radiology*. For your convenience, please fill in the permission request form, available for download at the journal's webpage and e-mail a scanned version to info@dirjournal.org.

Please ensure that you include the full reference of the material you want to use (i.e., year of publication, volume, issue and page numbers, author names, figure numbers where appropriate). Turkish Society of Radiology also requires a detailed overview of how you intend to use the material (i.e., in a book or a journal) and when.



BREAST IMAGING

157 Original article. Bahcesehir long-term population-based screening compared to National Breast Cancer Registry Data: effectiveness of screening in an emerging country. S. Ozkan Gurdal, A. N. Ozaydin, E. Aribal, B. Ozcinar, N. Cabioğlu, C. Sahin, V. Ozmen

CHEST IMAGING

- 164 Original article. Evaluation of disease severity with quantitative chest CT in COVID-19 patients. F. Ufuk, M. Demirci, E. Uğurlu, N. Çetin, N. Yiğit, T. Sarı
- 172 Original article. A new imaging sign in COVID-19 pneumonia: vascular changes and their correlation with clinical severity of the disease. D. E. Tekcan Şanlı, D. Yıldırım
- 181 Original article. Diagnostic performance of low-dose chest CT to detect COVID-19: A Turkish population study. S. Aslan, T. Bekçi, İ. M. Çakır, M. Ekiz, İ. Yavuz, A. M. Şahin
- 188 Pictorial essay. The novel coronavirus pneumonia (COVID-19): a pictorial review of chest CT features. S. Bayraktaroğlu, A. Çinkooğlu, N. Ceylan, R. Savaş

CARDIOVASCULAR IMAGING

195 Original article. Evaluation of common carotid artery in type 1 diabetes mellitus patients through speckle tracking carotid strain ultrasonography. M. N. Cerit, H. N. Şendur, B. Bolayır, E. T. Cerit, E. Cindil, M. Yaşım Aktürk, F. Baloş Törüner, S. Özhan Oktar

INTERVENTIONAL RADIOLOGY

- 206 Original article. Percutaneous mechanical thrombectomy in acute and subacute lower-extremity ischemia: impact of adjunctive, solely nonthrombolytic endovascular procedures. F. Fluck, M. Stephan, A. Augustin, N. Rickert, T. Alexander Bley, R. Kickuth
- 214 Original article. Recent advancement on PD-L1 expression quantification: the radiologist perspective on CT-guided FNAC. S. Casale, C. Bortolotto, G. M. Stella, A. R. Filippi, S. Gitto, O. M. Bottinelli, S. Carnevale, P. Morbini, L. Preda

219 Original article. Classification of reflux patterns in patients with great saphenous vein insufficiency and correlation with clinical severity. S. Yılmaz, B. Çakır Peköz, N. Dincer, S. Deniz, L. Oğuzkurt

Volume 27 • Issue 2

www.dirjournal.org

March-April 2021

- 225 Original article. The use of dual-lumen balloon for embolization of peripheral arteriovenous malformations. T. V. C. Albuquerque, D. N. J. Stamoulis, L. M. Monsignore, L. H. de Castro-Afonso, G. S. Nakiri, M. T. Rezende, F. P. Trivelat, J. R. Vanzin, A. C. Ulhoa, D. G. Abud
- 232 Original article. Small-diameter TIPS combined with splenic artery embolization in the management of refractory ascites in cirrhotic patients. N. E. Frenk, T. Bochnakova, S. Ganguli, N. Mercaldo, A. S. Allegretti, D. S. Pratt, K. Yamada
- 238 Original article. Combined Y-configured stents for revising occluded transjugular intrahepatic portosystemic shunt. X. Wang, Y. Zhu, M. Zhao, X. Luo, L. Yang
- 244 Original article. Radiation dose reduction in CT-guided cryoablation of renal tumors. J. Zhong, M. Gallagher, C. Hounslow, G. Iball, T. Wah
- 249 Original article. Mechanical rotational thrombectomy in long femoropopliteal artery and bypass occlusions: risk factors for periprocedural peripheral embolization. *E. Stahlberg, S. Anton, M. Sieren, F. Wegner, J. Barkhausen, J. P. Goltz*
- 257 Original article. Application of percutaneous transluminal sharp recanalization in transjugular intrahepatic portosystemic shunt for patients with chronic portal vein occlusion. M. Li, J. Luo, J. Chen, C. Wu, T. Pan, M. Huang, Z. Jiang
- 263 Review. Future scenarios and opportunities for interventional radiology in the post COVID-19 era. J. M. Abadal, J. Gonzalez-Nieto, F. Lopez-Zarraga, M. A. de Gregorio, P. M. Kitrou, S. Mendez
- 269 Technical note. CT fluoroscopy-guided percutaneous intervertebral drain insertion for cervical pyogenic spondylodiscitis. K. Tomita, T. Matsumoto, M. Kamono, K. Miyazaki, T. Hasebe

Full text of these articles can be accessed online at www.dirjournal.org or through PubMed (www.pubmed.org).



Volume 27 • Issue 2

March-April 2021

www.dirjournal.org

272 Technical note. Concomitant AngioVac thrombectomy and patent foramen ovale closure in a patient with a large right atrial thrombus and recent paradoxical embolic stroke. T. E. Callese, E. H. Yang, D. Levi, R. N. Srinivasa, J. M. Moriarty

MODALITY-BASED (US, CT, MRI, PET-CT) IMAGING

275 Original article. A comparison study of dual-energy spectral CT and ¹⁸F-FDG PET/CT in primary tumors and lymph nodes of lung cancer. O. Kupik, Y. Metin, G. Eren, N. Orhan Metin, M. Arpa

MUSCULOSKELETAL IMAGING

283 Technical note. Fluoroscopy-guided bone marrow aspiration and biopsy: technical note. A. Tomasian, J. Long, J. W. Jennings

NEURORADIOLOGY

285 Original article. Are prominent medullary veins better than prominent cortical veins as predictors of early clinical outcome in patients with acute ischemic stroke? L. Jing, B. Sui, M. Shen, H. Qin, P. Gao

UNSPECIFIED

- 293 Original artic. The antimicrobial efficacy of shielded ultraviolet germicidal irradiation in CT rooms with intense human circulation. G. Yıldırım, H. Kılıç, H. M. Karakaş
- 302 Review. COVID-19 radiology CT personnel management. H. İ. Özdemir, R. Savaş, S. S. Özbek

LETTER TO THE EDITOR

306 CT characteristics of COVID-19: reversed halo sign or target sign? *E. Marchiori, L. F. Nobre, B. Hochhegger, G. Zanetti*