

ISSN 1305-3825 • EISSN 1305-3612

# DIR

## Diagnostic and Interventional Radiology

**TSR**  
1924  
TURKISH SOCIETY  
OF RADIOLOGY

[dirjournal.org](http://dirjournal.org)

VOLUME 22  
ISSUE 1  
JANUARY–FEBRUARY 2016

### Editor in Chief

Nevzat Karabulut, MD  
Denizli, Turkey

### Section Editors and Editorial Board

#### Abdominal Imaging

Murat Acar, MD  
Mustafa N. Özmen, MD  
Mustafa Seçil, MD  
Barış Türkbey, MD

#### Breast Imaging

Sibel Kul, MD

#### Cardiovascular Imaging

Mecit Kantarcı, MD

#### General Radiology

Ersin Öztürk, MD

#### Interventional Radiology

Cüneyt Aytekin, MD  
Barbaros Çil, MD  
Ramazan Kutlu, MD

#### Musculoskeletal Imaging

Fatih Kantarcı, MD

#### Neurointerventional Radiology

İsmail Oran, MD

#### Neuroradiology and Head & Neck Imaging

Kubilay Aydın, MD  
Nafi Aygün, MD

#### Nuclear Medicine & Molecular Imaging

A. Cahid Civelek, MD

#### Pediatric Imaging

Korgün Koral, MD  
Ensar Yekeler, MD

#### Thoracic Imaging

Figen Demirkazık, MD

### Biostatistical Consultant

İlker Ercan, PhD

### Publication Staff

#### Copyediting

Beril Tavşanlı Sili, PhD

#### Publication Services

AVES, İstanbul, Turkey  
www.avesyayincilik.com

### 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

Diagnostic and Interventional Radiology is published bimonthly by the Turkish Society of Radiology. 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](http://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](http://www.icmje.org)).

An electronic edition of Diagnostic and Interventional Radiology is available at [www.dirjournal.org](http://www.dirjournal.org) (ISSN 1305-3825 / EISSN 1305-3612).

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 Girişim 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](http://www.dirjournal.org) are reserved by the Turkish Society of Radiology.

Diagnostic and Interventional Radiology is indexed in Science Citation Index Expanded, PubMed/MEDLINE, TUBITAK ULAKBİM TR Index, EMBASE®, SCOPUS®, DOAJ and the Turkish Medical Index.

Printed in Turkey

Printed on acid-free paper

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.

Türk Radyoloji Derneği adına sahibi / Owned by on behalf of the Turkish Society of Radiology: Tamer Kaya • Sorumlu Yazı İşleri Müdürü / Executive Editor: Ayşenur Oktay • Yayın türü / Publication Type: Yerel süreli / Bimonthly periodical • Basım yeri / Printed at: ADA Ofset, 2. Matbaacılar Sit. E Blok No: (ZE2) 1. Kat Topkapı, İstanbul, Turkey (+90-212-5671242) • Basım tarihi / Printing Date: 25 Aralık 2015 / December 25, 2015 • Türk Radyoloji Derneği tarafından yayınlanmaktadır / Published by Turkish Society of Radiology, Hoşdere Cad., Güzelkent Sok., Çankaya Evleri, F/2, 06540 Ankara, Turkey



## Instructions for Authors

Manuscript submission is online at [www.dirjournal.org](http://www.dirjournal.org). Please refer to the detailed Instructions for Authors at [www.dirjournal.org](http://www.dirjournal.org) and use them as a checklist.

This journal is in compliance with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals, as published by the International Committee of Medical Journal Editors (updated December 2014, [www.icmje.org](http://www.icmje.org)).

### Scope

*Diagnostic and Interventional Radiology* is a medium for disseminating scientific information based on research, clinical experience, and observations pertaining to diagnostic and interventional radiology.

• This journal is in compliance with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals, as published by the International Committee of Medical Journal Editors (updated December 2014, [www.icmje.org](http://www.icmje.org)). Any clinical trials must be registered as outlined in the ICMJE guidelines.

• For studies reporting diagnostic accuracy, please refer to the Standards for Reporting of Diagnostic Accuracy (STARD) checklist at <http://www.stard-statement.org/>.

The author(s) MUST sign, scan and submit the Copyright Transfer Form that is assigned to the "Diagnostic and Interventional Radiology" journal at initial submission. Otherwise online or print publication will not be made.

Fax +90-312-4423654

### Form of manuscript

Papers must be in English and presented in the following order:

- Title of the manuscript
- Abstract (250 words or less, structured for original articles)
- Text of paper
- Acknowledgements
- Main points
- Conflict of interest disclosure
- References
- Tables (numbered with Arabic numerals; 1, 2, 3, etc.), prepared on separate sheets
- Figure legends (numbered consecutively using Arabic numerals)

Please use appropriate subheadings and arrange your text as follows:

### Abstract

The abstract should contain four sections (for original articles only): Purpose; Methods; Results; Conclusion. Each section should comprise one paragraph, beginning with the name of the section in uppercase letters, followed by a colon: (PURPOSE: We aimed to report examples of ...)

### Introduction

State briefly the nature and purpose of the work, quoting the relevant literature.

### Methods

Include the details of clinical and technical procedures.

### Research ethics standards compliance

All manuscripts dealing with human subjects must contain a statement indicating that the study was approved by the Institutional Review Board or comparable formal research ethics review committee. If none is present at your institution, there should be a statement that the research was

performed according to the Declaration of Helsinki principles ([www.wma.net/e/policy/b3.htm](http://www.wma.net/e/policy/b3.htm)). There should also be a statement about whether informed consent was obtained from research subjects.

### Results

Present these clearly, concisely, and without comment.

### Discussion

Explain your results and relate them to those of other authors; define their significance for clinical practice.

### Main points

"Main Points" should emphasize the most striking results of the study and highlight the message that is intended to be conveyed to the readers. These points should be constructed in a way which provides the readers with a general overview of the article and enables them to have a general idea about the article.

### References

Only essential references should be cited. If there are six or fewer authors, all should be listed. If there are seven or more, list the first three and then "et al." the rest. The list should be in order of first appearance in the text. Only numerals should be cited in the text. Journal names should be abbreviated according to MEDLINE (<http://www.ncbi.nlm.nih.gov/journals?itool=sidebar>).

### Journal article

1. Hoverman IV, Gentry LO, Jones DW, Guerriero WG. Intrarenal abscess: Report of 14 cases. *Arch Int Med* 1980; 140:914–916.

### Books

2. Watanabe M, Takeda S, Ikeuchi H. Atlas of arthroscopy. 2nd ed. Tokyo: Igaku Shoin, 1969; 57–59.
3. Hull RD, Hirsh J. Comparative value of tests for the diagnosis of venous thrombosis. In: Bernstein EF, ed. Noninvasive diagnostic techniques in vascular disease. 3rd ed. St. Louis: Mosby, 1985; 779–796.

### Tables

Tables should have a title and footnotes explaining any abbreviation used in that table. Lowercase letters (a, b, c, ...) should be used for referenced footnotes.

### Figures

All figures should be cited in the text and figure parts should be identified by lowercase letters (e.g., Figure 1a). Graphs and drawings are regarded as figures.

### Electronic formats

**Scan resolution:** Scanned line drawings should be digitized with a minimum resolution of 800 dpi relative to the final figure size. For digital halftones, 300 dpi is usually sufficient.

**Color illustrations:** Store color illustrations as RGB (8 bits per channel) in TIF format.

**Vector graphics:** Fonts used in vector graphics must be included. Do not draw with hairlines. The minimum line width is 0.2 mm (i.e., 0.567 pt) relative to the final size. Vector graphics exported from a drawing program should be stored in EPS format; the EPS file must always contain a preview of the figure in TIFF. Suitable drawing programs include Freehand, Illustrator, Corel Draw, and Designer.

## Online manuscript submission

Carefully read the Instructions for Authors to the left. Go to the *Diagnostic and Interventional Radiology* website at [www.dirjournal.org](http://www.dirjournal.org).

Click Online Manuscript Submission.

If you are a registered user, enter your username and password. If you are not, register by clicking New User. Fill in the form and click Send. Define your username and password. When Author Center opens, enter New Submission. From this point on, follow the steps by clicking on the Next button. Select manuscript category (neuroradiology, abdominal imaging, etc.) and type (original article, review, etc.).

Enter affiliation, city, and country data (do not abbreviate institutional names). Enter author data. Full names of the authors should be given, an e-mail address must be provided, and corresponding author should be identified.

Enter the manuscript title.

Enter the abstract (it should be structured in all Manuscripts, except letter, review, technical note, and pictorial essay).

Enter the key words.

Enter a cover letter.

Upload your manuscript in the following manner:

Name your manuscript, which must be a Word document, as "text." This document should contain, in an orderly fashion, the main text (without any author or affiliation information), references, tables on separate pages, and figure legends. Search for your manuscript document by using the Browse button. After selecting the document, click the Upload button. Upload the figures. Every figure part should be properly named as separate files (e.g., "Figure\_1a"), browsed as explained above, and separately uploaded. Drawings and graphs are regarded as figures.

After all has been uploaded, click the Send Manuscript button. If you do not click this button, you may visit later to complete the manuscript submission. Your incomplete submission will be saved for later completion.

A signed and scanned version of the Copyright Transfer Form must be submitted for each manuscript through the manuscript submission and evaluation system during the initial submission process. Your submission will not be processed unless the form is received by the editorial office.

## Contents

### ACKNOWLEDGEMENT OF REVIEWERS

- 1 **Editor's Recognition Awards and acknowledgements.**  
*N. Karabulut*

### ABDOMINAL IMAGING

- 5 **Original article.** The role of multidetector CT in local staging and evaluation of retroperitoneal surgical margin involvement in colon cancer. *F. Dinç Elibol, F. Obuz, S. Sökmen, C. Terzi, A. E. Canda, Ö. Sağol, S. Sarıoğlu*
- 13 **Original article.** *In vivo* and *ex vivo* measurements: noninvasive assessment of alcoholic fatty liver using 1H-MR spectroscopy. *D. Keese, H. Korkusuz, F. Huebner, D. Namgaladze, B. Raschidi, T. J. Vogl*
- 22 **Pictorial essay.** Different forms of iron accumulation in the liver on MRI. *İ. S. İdilman, D. Akata, M. N. Özmen, M. Karçaaltınçaba*

### BREAST IMAGING

- 29 **Original article.** Predictive factors for invasive cancer in surgical specimens following an initial diagnosis of ductal carcinoma in situ after stereotactic vacuum-assisted breast biopsy in microcalcification-only lesions. *H. Gümüş, P. Mills, D. Fish, M. Gümüş, K. Cox, H. Devalia, S. Jones, P. Jones, A. R. Sever*

### CHEST IMAGING

- 35 **Original article.** Increased x-ray attenuation in malignant vs. benign mediastinal nodes in an orthotopic model of lung cancer. *P. Flechsig, P. Choyke, C. Kratochwil, A. Warth, G. Antoch, T. Holland-Letz, D. Rath, V. Eichwald, P. E. Huber, H-U. Kauczor, U. Haberhorn, F. L. Giesel*

### HEAD AND NECK IMAGING

- 40 **Pictorial essay.** Imaging of facial nerve schwannomas: diagnostic pearls and potential pitfalls. *P. Mundada, B. S. Purohit, T. S. Kumar, T. Y. Tan*

### INTERVENTIONAL RADIOLOGY

- 47 **Original article.** A novel modified PAIR technique using a trocar catheter for percutaneous treatment of liver hydatid cysts: a six-year experience. *A. Nayman, I. Güler, S. Keskin, T. B. Erdem, H. Borazan, A. Kucukapan, H. Ozbiner, A. Batur, E. Ertekin, B. Feyzioglu, O. Koc, H. E. Kaya, O. Temizoz, A. Kartal, O. Ozbek*

- 52 **Original article.** Clinical outcome of angiosome-oriented infrapopliteal percutaneous transluminal angioplasty for isolated infrapopliteal lesions in patients with critical limb ischemia. *E-Y. Jeon, Y. K. Cho, D. Y. Yoon, D. J. Kim, J. J. Woo*
- 59 **Original article.** The endovenous ASVAL method: principles and preliminary results. *M. M. Atasoy, L. Oğuzkurt*
- 65 **Original article.** Radiofrequency ablation for lung tumors: outcomes, effects on survival, and prognostic factors. *O. Akhan, E. Güler, D. Akıncı, T. Çiftçi, I. Ç. Köse*
- 72 **Technical note.** AngioVac extraction of intra-atrial hepatoma masquerading as PICC-associated thrombus. *S. Abboud, K. Raparia, J. M. Ubago, S. Resnick*

### ONCOLOGIC IMAGING

- 75 **Review.** Proton magnetic resonance spectroscopy in oncology: the fingerprints of cancer? *R. García-Figueiras, S. Baleato-González, A. R. Padhani, L. Oleaga, J. C. Vilanova, A. Luna, J. C. C. Gómez*

### PEDIATRIC RADIOLOGY

- 90 **Original article.** Silent cerebral emboli following percutaneous closure of atrial septal defect in pediatric patients: a diffusion-weighted MRI study. *G. Koç, A. Özyurt, S. Doğanay, A. Baykan, S. B. Görkem, M. S. Doğan, Ö. Pamukçu, K. Üzümlü, A. Coşkun, N. Narin*
- 95 **Pictorial essay.** Imaging features of Burkitt lymphoma in pediatric patients. *B. E. Derinkuyu, Ö. Boyunağa, Ç. Öztunalı, F. Tekkeşin, Ç. Damar, A. G. Alımlı, A. Okur*

### RADIOLOGY PHYSICS

- 101 **Original article.** Effect of imaging parameters on the accuracy of apparent diffusion coefficient and optimization strategies. *A. Celik*

### LETTER TO THE EDITOR

- 108 **Monitorization of chemotherapy response using diffusion-weighted imaging in neuroblastoma.** *M. Kocaoğlu, N. Bulakbaşı*



# Copyright Transfer Form

## Conflict of Interest Acknowledgement Certification of Coauthors Exclusive Publication Statement

A signed and scanned version of this form should be submitted for each manuscript through the manuscript submission and evaluation system during the initial submission process. Your submission will not be processed unless the form is received by the editorial office.

This form can be downloaded at [www.dirjournal.org](http://www.dirjournal.org)

Complete copyright to the article entitled:

---

(hereinafter, "the article") is hereby transferred to the Turkish Society of Radiology (for United States government employees to the extent transferable), effective if and when the article is accepted for publication in Diagnostic and Interventional Radiology.

The copyright which the authors assign to the Turkish Society of Radiology encompasses all rights to exploit the article in any manner throughout the world. These rights include, but are not limited to, all print reproduction and publication rights and electronic publication rights, such as CD-ROM and online publication, as well as dissemination by any technology now known or later devised.

The author(s) retain all patent and other proprietary rights to the article, with exception of the copyright. If an author wishes to reproduce the article in any medium for distribution purposes, the author must obtain permission from the Turkish Society of Radiology and, if permission is granted, the author must credit the original source of publication when the article is reproduced.

The author(s) certify that:

1. The article does not infringe any personal or proprietary rights of others;
2. The editor-in-chief of Diagnostic and Interventional Radiology has been or will be informed of any proprietary or commercial interest or conflicts of interest the authors may have that relate directly or indirectly to the subject of this article;
3. The scientific content of radiologic images has not been altered, and that disclosure has been made regarding computer enhancement or other electronic manipulation of radiologic images;
4. The authors have made substantive and specific intellectual contributions to this article and assume full responsibility for its content;
5. This article has not been previously published and is not currently under consideration for publication elsewhere; and
6. This agreement has been signed by all of the authors who contributed to the article.

\_\_\_\_\_  
First author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Second author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Third author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Fourth author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Fifth author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Sixth author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seventh author's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Please use additional sheets for more authors.