

# 中国医学影像技术

ZHONGGUO YIXUE YINGXIANG JISHU

月刊 1985年创刊 第39卷 第3期 2023年3月20日出版

主管 中国科学院

主办 中国科学院声学研究所

名誉主编

刘玉清 唐孝威

主编 洪楠 李建初

副主编

陈涛 崔立刚 冯逢

何文 李风华 李亚明

卢洁 任卫东 孙应实

田家玮 王培军 王振常

吴青青 伍建林 谢明星

余永强 郑海荣

社长 郑春见

总编辑 王艳萍

编辑出版

《中国医学影像技术》期刊社  
有限公司

印刷 北京科信印刷有限公司

发行

国内:中国邮政集团有限公司

北京市报刊发行局

国外:中国国际图书贸易集团  
有限公司

北京399信箱,100048

代号:M1344

订购

全国各地邮局

邮发代号 82-509

邮购

100190 北京市海淀区北四环  
西路21号大猷楼502室

电话、传真:(86-10)82547903

定价

每册26元 全年312元

中国标准连续出版物号

ISSN 1003-3289

CN 11-1881/R

广告发布登记

京海市监广登字20200042号

网址 www.cjmit.com

E-mail cjmit@mail.ioa.ac.cn

2023年版权归《中国医学影像技术》  
期刊社有限公司所有

## 目 次

### 实验研究

MRI 脂质定量评估 Irisin 干预后小鼠肩胛间棕色脂肪激活

..... 戴景月,赵宇飞,江洋,陈月,唐兴喆,崔颖,彭新桂(321)

### 中枢神经影像学

健康中老年人性激素、神经血管耦合及认知功能的相关性

..... 李慧,李晓舒,高子雯,朱婉秋,黄子昂,李雨晴,余永强(326)

皮层下缺血性脑血管病白质纤维束与认知功能的关系

..... 周立静,何森,李亚君,雷婷,闫伟,宋佳芮,陈莉(331)

MR 血管成像血流动力学预测椎-基底动脉交界处裂隙型开窗患者发生后循环脑梗死

..... 陈晓琴,成志国,郭昊,周志尊,陈广新(336)

### 头颈部影像学

鼻腔鼻窦神经鞘瘤 CT 及 MRI 表现

..... 郝胜璞,王宁,高国栋,王佳鑫,包文君,耿左军(342)

### 心脏、血管影像学

峰值应变离散度评估<sup>131</sup>I治疗前急性甲状腺功能减退分化型甲状腺癌患者

..... 彭熠,尹立雪,冯洁,张莉,任梅(346)

经胸超声心动图诊断机械瓣膜功能障碍 ..... 杨红萍,马小静,李菁,何亚峰(351)

左心房与肺静脉容积比预测导管消融术后心房颤动复发

..... 和燕斐,杨瑞,孙玉梅,黄琼,刘继伟,史征,葛红(356)

### 胸部影像学

肺超声评分鉴别中度与重度急性胰腺炎

..... 帅佳颖,刘英,刘岷,王全江,陈杰,程陈,骈林萍(361)

基于多中心数字化乳腺 X 线摄影影像组学预测乳腺癌人表皮生长因子受体-2 过表达

..... 谢玉海,韩剑剑,马培旗,王小雷,马文俊,张宁宁,曹雪花,魏天贤,陈楠(365)

支气管色素沉着纤维化致肺不张 CT 表现

..... 杨晶晶,张丽萍,邓靓娜,徐敏,袁隆,席华泽,周俊林(370)

### 腹部影像学

钆塞酸二钠增强 MRI 联合肿瘤标志物鉴别诊断混合型肝细胞癌-胆管癌与

肝内肿块型胆管癌 ..... 韩鼎盛,黎雅琳,周彦汝,朱晨迪,黄婷婷,何佳,张岚(375)

MR 小肠造影联合弥散加权成像诊断儿童肠白塞病

..... 王瑞珠,席艳丽,仰飞,王颖(381)

双能量 CT 测量胰腺细胞外体积分数及标准化碘浓度评估 2 型糖尿病

..... 蔡晓艺,季旸,王国华,万俊,张振(385)

平衡稳态自由进动序列 MRI 评估直肠癌周围良、恶性淋巴结

..... 王滔,陈梅鹃,张笑,李娜,赵艳,王永洪,毛玉,张小梅(389)

儿童胰腺实质性假乳头状瘤超声表现

..... 史素君,裴广华,解晓莹,徐魏军,陈树楠,王琪(393)

## 妇产科影像学

先天性心脏病胎儿胎盘病理学改变 ..... 熊晓蔚,吴青青,张思敏,王晶晶(397)

术前超声联合血浆 D-二聚体水平预测附件扭转角度 $\geq 720^\circ$  ..... 洪 蕾,禹 鑫,舒 欣,刘燕娜,章春泉,郭良云(401)

## 生殖泌尿影像学

超声多模态影像诊断前列腺癌及指导经直肠超声引导下靶向穿刺

..... 付 尧,苏 春,刘永泰,张琳琳,宋奕薇,宋 宇,范 博(406)

## 骨骼肌肉影像学

超声断层成像用于关节置换术后影像学评估

..... 魏 聰,陈 捷,李洪涛,张 辉,张求德,应 涛,胡 兵,丁明跃,尉迟明,郑元义(412)

孟肱关节下方关节囊厚度与治疗肩关节周围炎次数的相关性

..... 李 喜,李慎义,张 轶,龙湘党,杨孟哲,苏颖馨,付石波(417)

MR mDIXON Quant 技术定量的冈上肌及冈下肌脂肪浸润与肩袖损伤程度的相关性 ..... 罗小兰,刘高元,张海兵(421)

超声定量评估脑卒中后吞咽障碍患者颏舌骨肌 ..... 王丽琦,田 力,邓苗苗(425)

## 医学物理与工程学

基于双次梯度联合改进 Criminisi 算法去除超声图像中的人工标记并修复图像的可行性

..... 张 钊,奚谦逸,李奇轩,焦竹青,倪昕晔(429)

## 影像技术学

心电脉冲技术用于胸痛三联征-CT 血管造影 ..... 穆紫薇,王云玲,原小军,陈 强,邱立军,靳喜喜,罗 琳(435)

MR 3D-SPACE-STIR 与 3D-DESS 序列显示锁骨上臂丛神经 ..... 江 茜,王国松,黄锦金,蔡剡军(440)

对比经左、右侧肘正中静脉注射对比剂行冠状动脉 CT 血管成像图像质量 ..... 马燕辉,李韵昕,徐妍妍,孙宏亮,谢 岚(444)

## 综述

超声心动图评估贫血早产儿心功能研究进展 ..... 王芮婕,郑秋莹,刘 磊(449)

前列腺特异性膜抗原显像用于前列腺癌研究进展 ..... 付书凡,杜新雨,廖栩鹤,孙宏伟,徐红闻,张建华,范 岩(453)

定量磁化率成像用于帕金森病研究进展 ..... 卜书婷,庞惠泽,范国光(458)

多模态成像诊断人工瓣膜感染性心内膜炎进展 ..... 吴少锋,张 晶,任卫东(463)

## 经验交流

经超声引导下鞘内注射诺西那生钠治疗脊髓性肌萎缩症合并脊柱侧凸的可行性

..... 杨琼宇,李天刚,祁平安,燕志恒,徐晓燕,赵 娜,樊 雪(467)

## 个案报道

前胸壁髓外浆细胞瘤 1 例 ..... 李秀伟,于 明 (355)

二尖瓣成形术治疗二尖瓣后瓣脱垂伴重度关闭不全后收缩期前向运动征 1 例

..... 颜 艳,左明良,杨基兰,缪 娟,罗 贤,黄克力,刘胜中,向 波(470)

左侧下腔静脉合并右肾静脉受压综合征及右位主动脉弓 1 例 ..... 方 萍,金张龙,程南生(472)

Emanuel 综合征产前超声表现 1 例 ..... 郭习娟,彭园园,王艳菊,聂晓彤,孙聪欣(474)

1 例新生儿肠系膜巨大卡波西型血管内皮瘤影像学表现 ..... 黄文鹏,耿尚文,周宇涵,李莉明,高剑波(475)

左侧眼眶内淋巴上皮瘤样瘤 1 例 ..... 张茜敏,庄璐璐,黄 嵘(476)

眼睑皮脂腺癌 1 例 ..... 王琦美慧,张秀娟,孙志霞,戴 婷(477)

睾丸软斑误诊为恶性肿瘤 1 例 ..... 何晨冬,杨 巍(478)

超声诊断妊娠期肠扭转 1 例 ..... 钟 梅,刘小双,刘安国(479)

本期执行主编 伍建林 田家玮

本期执行编委 闫清淳

本期责任编辑 冯 洁 本期校对 徐 悅

# CHINESE JOURNAL OF MEDICAL IMAGING TECHNOLOGY

Monthly    Established in 1985    Vol 39, No 3    Mar 20, 2023

## Responsible Institution

Chinese Academy of Sciences

## Sponsor

Institute of Acoustics,  
Chinese Academy of Sciences

## Honorary Editor

LIU Yuqing   TANG Xiaowei

## Editor-in-Chief

HONG Nan   LI Jianchu

## Associate Editor

CHEN Tao   CUI Ligang  
FENG Feng   HE Wen  
LI Fenghua   LI Yaming   LU Jie  
REN Weidong   SUN Yingshi  
TIAN Jiawei   WANG Peijun  
WANG Zhenchang   WU Qingqing  
WU Jianlin   XIE Mingxing  
YU Yongqiang   ZHENG Hairong

## President

ZHENG Chunjian

## Chief Editor

WANG Yanping

## Editing and Publishing

Press of Chinese Journal of Medical Imaging Technology Co., Ltd

## Printing

Beijing Kexin Printing Co., Ltd

## Overseas Distributor

China International Book Trading Corporation  
P. O. Box 399, Beijing 100048, China  
Code No. M1344

## Mail Order

Room 502, Da-you Building,  
No. 21, North 4th Ring West Road,  
Haidian District, Beijing 100190, China  
Tel, Fax: (86-10)82547903

## Price (Foreign)

USD \$ 26.00

CSSN   ISSN 1003-3289  
CN 11-1881/R

Website   www.cjmit.com

E-mail   cjmit@mail.ioa.ac.cn

Copyright©2023 by the Press of  
Chinese Journal of Medical Imaging  
Technology Co., Ltd

## Contents in Brief

### Experimental Study

- MRI quantitative lipid content for assessment activation of interscapular brown adipose tissue in mice after Irisin intervention ..... (321)  
DAI Jingyue, ZHAO Yafei, JIANG Yang, CHEN Yue, TANG Xingzhe, CUI Ying, PENG Xingui

### Neuroimaging

- Correlations of sex hormones, neurovascular coupling and cognition function in healthy middle aged and elderly people ..... (326)  
LI Hui, LI Xiaoshu, GAO Ziwen, ZHU Wanqiu, HUANG Ziang, LI Yuqing, YU Yongqiang

- Relationships of white matter fiber bundles and cognitive function in subcortical ischemic vascular disease ..... (331)  
ZHOU Lijing, HE Miao, LI Yajun, LEI Ting, YAN Wei, SONG Jiarui, CHEN Li

- MR angiography hemodynamics for predicting posterior circulation cerebral infarction at vertebra-basilar artery junction in slit-type fenestrations patients ..... (336)  
CHEN Xiaoqin, CHENG Zhiguo, GUO Hao, ZHOU Zhizun, CHEN Guangxin

### Head and Neck Imaging

- CT and MRI manifestations of sinonasal neurilemmoma ..... (342)  
HAO Shengpu, WANG Ning, GAO Guodong, WANG Jiaxin, BAO Wenjun, GENG Zuojun

### Heart and Vascular Imaging

- Peak strain dispersion for evaluating left ventricular function and systolic synchrony in differentiated thyroid cancer patients with acute hypothyroidism before  $^{131}\text{I}$  treatment ..... (346)  
PENG Yi, YIN Lixue, FENG Jie, ZHANG Li, REN Mei

- Transthoracic echocardiography for diagnosing mechanical valve dysfunction ..... (351)  
YANG Hongping, MA Xiaojing, LI Jing, HE Yangfeng

- Left atrial volume/pulmonary vein volume for predicting recurrence of atrial fibrillation after catheter ablation ..... (356)  
HE Yanfei, YANG Rui, SUN Yumei, HUANG Qiong, LIU Jiwei, SHI Zheng, GE Hong

### Chest Imaging

- Lung ultrasound score for differentiating moderately and severe acute pancreatitis ..... (361)  
SHUAI Jiaying, LIU Ying, LIU Min, WANG Quanjiang, CHEN Jie, CHENG Chen, PIAN Linping

- Radiomics based on multi-center digital mammography for predicting human epidermal growth factor receptor-2 overexpression of breast cancer ..... (365)  
XIE Yuhai, HAN Jianjian, MA Peiqi, WANG Xiaolei, MA Wenjun, ZHANG Ningning, CAO Xuehua, WEI Tianxian, CHEN Nan

- CT manifestations of atelectasis caused by bronchial anthracofibrosis ..... (370)  
YANG Jingjing, ZHANG Liping, DENG Liangna, XU Min, YUAN Long, XI Huaze, ZHOU Junlin

### Abdominal Imaging

- Gd-EOB-DTPA enhanced MRI combining with tumor markers for differential diagnosis of combined hepatocellular-cholangiocarcinoma and intrahepatic mass-forming cholangiocarcinoma ..... (375)  
HAN Dingsheng, LI Yalin, ZHOU Yanru, ZHU Chendi, HUANG Tingting, HE Jia, ZHANG Lan

- MR enterography combined with diffusion-weighted imaging for diagnosing intestinal Behcet's disease in children ..... (381)  
WANG Ruizhu, XI Yanli, YANG Fei, WANG Ying

- Pancreatic extracellular volume fraction and normalized iodine concentration measured with dual-energy CT for evaluating type 2 diabetes mellitus ..... (385)  
CAI Xiaoyi, JI Yang, WANG Guohua, WAN Jun, ZHANG Zhen

- Balanced steady-state free precession MRI for judging benign and malignant peripheral lymph nodes around rectal cancer ..... (389)  
WANG Tao, CHEN Meijuan, ZHANG Xiao, LI Na, ZHAO Yan, WANG Yonghong, MAO Yu, ZHANG Xiaomei

- Ultrasonic manifestations of pancreas solid pseudopapillary tumor in children ..... (393)  
SHI Sujun, PEI Guanghua, XIE Xiaoying, XU Weijun, CHEN Shunan, WANG Qi

### Obstetrical and Gynecological Imaging

- Pathological changes of placenta in fetuses with congenital heart disease ..... (397)  
XIONG Xiaowei, WU Qingqing, ZHANG Simin, WANG Jingjing

- Preoperative ultrasound combined with plasma D-dimer levels for predicting adnexal torsion angle  $\geq 720^\circ$  ..... (401)  
HONG Lei, YU Xin, SHU Xin, LIU Yanna, ZHANG Chunquan, GUO Liangyun

<b>Genitourinary Imaging</b>	
<b>Ultrasound multimodal imaging for diagnosis of prostate cancer and guiding transrectal ultrasound-guided targeted puncture</b>	..... (406)
FU Yao, SU Chun, LIU Yongtai, ZHANG Linlin, SONG Yirwei, SONG Yu, FAN Bo	
<b>Musculoskeletal Imaging</b>	
<b>Ultrasound tomography for image evaluation after joint replacement</b>	..... (412)
WEI Cong, CHEN Jie, LI Hongtao, ZHANG Hui, ZHANG Qiude, YING Tao, HU Bing, DING Mingyue, YUCHI Ming, ZHENG Yuanyi	
<b>Relationship of inferior glenohumeral joint capsule thickness and times of treating periarthritis humeroscapularis</b>	..... (417)
LI Xi, LI Shenyi, ZHANG Yi, LONG Xiangdang, YANG Mengzhe, SU Yingxin, FU Shibo	
<b>Correlation of fatty infiltration of supraspinatus and infraspinatus by MR mDIXON Quant technique and rotator cuff injury degree</b>	..... (421)
LUO Xiaolan, LIU Gaoyuan, ZHANG Haibing	
<b>Quantitative ultrasound assessment of geniohyoid muscle in patients with post-stroke dysphagia</b>	..... (425)
WANG Ligi, TIAN Li, DENG Miaomiao	
<b>Imaging Physics and Engineering</b>	
<b>Feasibility of removing manual marks on ultrasonic image and repairing images based on double gradient combined with improved Criminisi algorithm</b>	..... (429)
ZHANG Fan, XI Qianyi, LI Qixuan, JIAO Zhuqing, NI Xinye	
<b>Imaging Technology</b>	
<b>Electrocardiogram-pulsing technique used in triple-rule-out-CT angiography</b>	..... (435)
MU Ziwei, WANG Yunling, YUAN Xiaojun, CHEN Qiang, QIU Lijun, JIN Xixi, LUO Lin	
<b>MR 3D-SPACE-STIR and 3D-DESS sequences for displaying supraclavicular brachial plexus</b>	..... (440)
JIANG Qian, WANG Guosong, HUANG Jinjin, CAI Shanjun	
<b>Comparison on imaging quality of coronary CT angiography after contrast agent injection via left or right median cubital vein</b>	..... (444)
MA Yanhui, LI Yunxin, XU Yanyan, SUN Hongliang, XIE Sheng	
<b>Reviews</b>	
<b>Research progresses of echocardiography for evaluating cardiac function in premature infants with anemia</b>	..... (449)
WANG Ruijie, ZHENG Qiuying, LIU Lei	
<b>Research progresses in prostate specific membrane antigen imaging of prostate cancer</b>	..... (453)
FU Shufan, DU Xinyu, LIAO Xuhe, SUN Hongwei, XU Hongchuang, ZHANG Jianhua, FAN Yan	
<b>Research progresses of quantitative susceptibility imaging for Parkinson disease</b>	..... (458)
BU Shuting, PANG Huize, FAN Guoguang	
<b>Progresses of multimodality imaging in diagnosis of prosthetic infective endocarditis</b>	..... (463)
WU Shaofeng, ZHANG Jing, REN Weidong	
<b>Clinical Experiences</b>	
<b>Feasibility of ultrasound-guided intrathecal injection of nusinersen for spinal muscular atrophy complicated with scoliosis</b>	..... (467)
YANG Qiongyu, LI Tiangang, QI Ping'an, YAN Zhiheng, XU Xiaoyan, ZHAO Na, FAN Xue	
<b>Case Reports</b>	
<b>Extramedullary plasmacytoma of anterior chest wall: Case report</b>	..... (355)
LI Xuwei, YU Ming	
<b>Systolic anterior motion after mitral valvuloplasty for treating posterior mitral valve prolapse complicated with severe insufficiency:</b>	
<b>Case report</b>	..... (470)
YAN Yan, ZUO Mingliang, YANG Jilan, MIAO Juan, LUO Xian, HUANG Keli, LIU Shengzhong, XIANG Bo	
<b>Left inferior vena cava complicated with right renal vein entrapment syndrome and right aortic arch: Case report</b>	..... (472)
FANG Ping, JIN Zhanglong, CHENG Nansheng	
<b>Prenatal ultrasonic findings of Emanuel syndrome: Case report</b>	..... (474)
GUO Xijuan, PENG Yuanyuan, WANG Yanju, NIE Xiaotong, SUN Congxin	
<b>Imaging findings of giant mesentery Kaposiform hemangioendothelioma in a newborn: Case report</b>	..... (475)
HUANG Wenpeng, GENG Shangwen, ZHOU Yuhua, LI Liming, GAO Jianbo	
<b>Left intraorbital lymphoepithelioma-like carcinoma: Case report</b>	..... (476)
ZHANG Ximin, ZHUANG Lulu, HUANG Rong	
<b>Sebaceous carcinoma of eyelid: Case report</b>	..... (477)
WANG Qimeihui, ZHANG Xiujuan, SUN Zhixia, DAI Ting	
<b>Testicular malakoplakia misdiagnosed as malignant tumor: Case report</b>	..... (478)
HE Chendong, YANG Wei	
<b>Ultrasonic diagnosis of intestinal volvulus in pregnancy: Case report</b>	..... (479)
ZHONG Mei, LIU Xiaoshuang, LIU Anguo	