DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS

15 MAR 2017

MEMORANDUM FOR 959 CSPS MC 44E1A
ATTN: CAPT BRIAN P MURRAY

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Sudden Onset Abdominal Pain in A 42yo Male** presented at/published to **Academic Academy of Emergency Medicine Conference 2017, Orlando, FL, 16-20 March 2017** in accordance with MDWI 41-108, has been approved and assigned local file #**17070.**

2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.

3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.

4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
   a. In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (SG5 O&M); SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP) ; Grants; etc.]

   b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.

2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.

3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.

4. Attach a copy of your abstract, paper, poster and other supporting documentation.

5. Save and forward, via email, the processing form and all supporting documentation to your unit commander, program director or immediate supervisor for review/approval.

6. On page 2, have either your unit commander, program director or immediate supervisor:
   a. Print their name, rank/grade, title; sign and date the form in the approving authority's signature block or use an electronic signature.

7. Submit your completed form and all supporting documentation to the CRD for processing (59crdpubspres@us.af.mil). **This should be accomplished no later than 30 days before final clearance is required to publish/present your materials.** If you have any questions or concerns, please contact the 59 CRD/Publications and Presentations Section at 292-7141 for assistance.

8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.

9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. **Note:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.

10. If your manuscript is accepted for scientific publication, please contact the 59 CRD/Publications and Presentations Section at 292-7141. This information is reported to the 59 MDW/CC. All medical research or technical information publications/presentations must be reported to the Defense Technical Information Center (DITC). See 59 MDWI 41-108, *Presentation and Publication of Medical and Technical Papers,* for additional information.

11. The Joint Ethics Regulation (JER) DoD 5500.07-R, *Standards of Conduct*, provides standards of ethical conduct for all DoD personnel and their interactions with other non-DoD entities, organizations, societies, conferences, etc. Part of the Form 3039 review and approval process includes a legal ethics review to address any potential conflicts related to DoD personnel participating in non-DoD sponsored conferences, professional meetings, publication/presentation disclosures to domestic and foreign audiences, DoD personnel accepting non-DoD contributions, awards, honoraria, gifts, etc. The specific circumstances for your presentation will determine whether a legal review is necessary. **If you (as the author) or your supervisor check "NO" in block 17 of the Form 3039, your research or technical documents will not be forwarded to the 502 ISG/JAC legal office for an ethics review.** To assist you in making this decision about whether to request a legal review, the following examples are provided as a guideline:

    For presentations before professional societies and like organizations, the 59 MDW Public Affairs Office (PAO) will provide the needed review to ensure proper disclaimers are included and the subject matter of the presentation does not create any cause for DoD concern.

    If the sponsor of a conference or meeting is a DoD entity, an ethics review of your presentation is not required, since the DoD entity is responsible to obtain all approvals for the event.

    If the sponsor of a conference or meeting is a non-DoD commercial entity or an entity seeking to do business with the government, then your presentation should have an ethics review.

    If your travel is being paid for (in whole or in part) by a non-Federal entity (someone other than the government), a legal ethics review is needed. These requests for legal review should come through the 59 MDW Gifts and Grants Office to 502 ISG/JAC.

    If you are receiving an honorarium or payment for speaking, a legal ethics review is required.

    If you (as the author) or your supervisor check "YES" in block 17 of the Form 3039, your research or technical documents will be forwarded simultaneously to the 502 ISG/JAC legal office and PAO for review to help reduce turn-around time. If you have any questions regarding legal reviews, please contact the legal office at (210) 671-5795/3365, DSN 473.

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement:
"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving humans:
"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02_AFI 40-402."

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving animals, as required by AFMAN 40-401_IP :
"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol)	3. GME/GHSE STUDENT:	4. PROTOCOL NUMBER:
	Brian P. Murray, Capt, USAF, MC 44E1A	☒ YES ☐ NO	

5. PROTOCOL TITLE: (**NOTE:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.)

N/A

6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED:

Sudden Onset Abdominal Pain in a 42yo Male

7. FUNDING RECEIVED FOR THIS STUDY? ☐ YES ☒ NO FUNDING SOURCE:

8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: ☐ YES ☒ NO

9. IS THIS MATERIAL CLASSIFIED? ☐ YES ☒ NO

10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.?
☐ YES ☒ NO **NOTE:** If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.

11. MATERIAL IS FOR: ☒ DOMESTIC RELEASE ☐ FOREIGN RELEASE
CHECK APPROPRIATE BOX OR BOXES FOR APPROVAL WITH THIS REQUEST. ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED.

☐ 11a. PUBLICATION/JOURNAL (List intended publication/journal.)

☐ 11b. PUBLISHED ABSTRACT (List intended journal.)

☒ 11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)
Academic Academy of Emergency Medicine Conference 2017 - Orlando, FL, 16-20 March 2017

☐ 11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meting.)

☐ 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.)

12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED?
☐ YES ☒ NO ASSIGNED FILE # _____ DATE _____

13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC
NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).

DATE	
27 February 2017	

14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email)	15. DUTY PHONE/PAGER NUMBER
Murray, Brian P. brian.p.murray20.mil@mail.mil	201-562-4686

16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.

LAST NAME, FIRST NAME AND M.I.	GRADE/RANK	SQUADRON/GROUP/OFFICE SYMBOL	INSTITUTION (If not 59 MDW)
a. Primary/Corresponding Author Brian P. Murray, DO	Capt	959CSPS/59MDW/44E1A	
b. Emma Burch, MSIV	2LT		University of Louisville Sch
c. Sunthosh P. Madireddi, MD	Capt	959CSPS/59MDW	
d. Willis Kann, MD	Capt		USARMY - BAMC
e.			

17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? ☐ YES ☒ NO

I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401_IP, AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.

18. AUTHOR'S PRINTED NAME, RANK, GRADE	19. AUTHOR'S SIGNATURE	20. DATE
Brian P. Murray, Capt	MURRAY.BRIAN.P.1367175482	25 Jan 2017
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE	**22. APPROVING AUTHORITY'S SIGNATURE**	**23. DATE**
Daniel J Sessions MD, MAJ, APD	SESSIONS.DANIEL.JOHN.1275555580	January 27, 2017

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1st ENDORSEMENT (59 MDW/SGVU Use Only)

TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	24. DATE RECEIVED January 27, 2017	25. ASSIGNED PROCESSING REQUEST FILE NUMBER 17070
26. DATE REVIEWED February 09, 2017		27. DATE FORWARDED TO 502 ISG/JAC

28. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: ☒ NO ☐ YES If yes, give date. _____ ☐ N/A

29. COMMENTS ☒ APPROVED ☐ DISAPPROVED

Single subject case study with appropriate disclaimers

30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	31. REVIEWER SIGNATURE	32. DATE
Kevin Kupferer/GS13/Human Research Subject Protection Expert	KUPFERER.KEVIN.R.1086667270	February 09, 2017

2nd ENDORSEMENT (502 ISG/JAC Use Only)

33. DATE RECEIVED	34. DATE FORWARDED TO 59 MDW/PA

35. COMMENTS ☐ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

36. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	37. REVIEWER SIGNATURE	38. DATE

3rd ENDORSEMENT (59 MDW/PA Use Only)

39. DATE RECEIVED	40. DATE FORWARDED TO 59 MDW/SGVU
March 10, 2017	March 14, 2017

41. COMMENTS ☒ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	43. REVIEWER SIGNATURE	44. DATE
Kevin Iinuma, SSgt/E-5, 59 MDW Public Affairs	IINUMA.KEVIN.MITSUGU.1296227613	March 14, 2017

4th ENDORSEMENT (59 MDW/SGVU Use Only)

45. DATE RECEIVED	46. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL ☐ YES ☐ NO ☐ COULD NOT BE REACHED ☐ LEFT MESSAGE

47. COMMENTS ☐ APPROVED ☐ DISAPPROVED

48. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	49. REVIEWER SIGNATURE	50. DATE

A Rare Cause of Sudden Onset Abdominal Pain

Emma R. Burch MSIV, 2LT, USAF; Brian P. Murray DO Capt, USAF, MC;
Sunthosh P. Madireddi, MD, Capt, USAF, MC; Willis Kann MD, CAPT, USA, MC
San Antonio Military Medical Center, Fort Sam Houston, TX

HPI

•A 42-year-old male smoker with history of hypertension and hyperlipidemia presents to the ED with 2 hours of sudden onset, persistent, severe, right sided "kidney" pain that he describes as aching and stabbing in nature. The pain radiates into his right testicle and is exacerbated by movement. Associated symptoms include nausea and sweating. He denies recent illness, fever, palpitations, or urinary complaints. All other ROS negative.

•PM/S/FHx: Umbilical Hernia Repair. Otherwise negative

Physical Exam

Vitals: BP 176/104, HR 85, RR 22, T 97.5, SpO_2 98% General: No acute distress
Respiratory: no respiratory distress, normal breath sounds
Cardiovascular: RRR, no M/R/G
Abdomen: Moderate tenderness in RLQ and at McBurney's point. No guarding, rebound, bruit, or pulsatile mass. Bowel sounds normal
GU: normal male genitals, no tenderness or swelling
Back: Normal, no CVA tenderness

EKG/Labs

EKG: incomplete RBBB, no prior for comparison
White Blood Cells: WNL
Hemoglobin: 17.3
Lipase: 218
AST/ALT: 47/91
Glucose: 106
UA: +protein, -RBC, -WBC

Questions

1. What imaging is best for making the diagnosis?
2. What risk factors should be considered in making the diagnosis?

Answers

1. CT scan with contrast is the gold standard for diagnosing renal infarct.
2. Risk factors for renal infarct include: Atrial fibrillation, atherosclerosis, aneurysm, antiphospholipid symptoms, endocarditis, fibromuscular dysplasia, nephrotic syndrome, polycythemia vera

Imaging

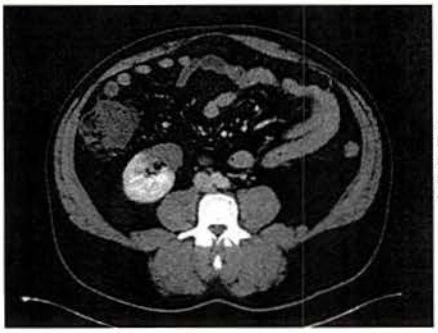

Figure 1 demonstrates hypoattenuation of the inferior pole of the right kidney on CT abdomen with contrast

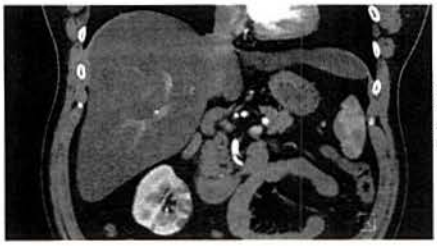

Figure 2 is a CT angiogram demonstrating the classic striated nephrogram of a renal infarct.

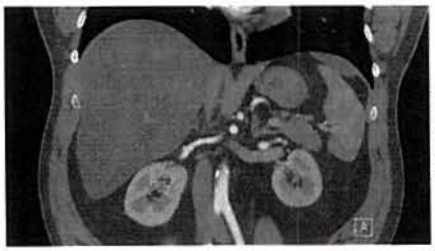

Figure 3 demonstrates a pseudoaneursym of the right renal artery, which can be seen in setting of fibromuscular dysplasia.

References

1. Antopolsky M, Simanovsky N, Stalnikowicz R, Salameh S, hiller N. Renal infarction in the ED: 10-year experience and review of literature. Am J Emerg Med. 2012 Sep;30(7):1055-60. doi:0.1016/j.ajem.2011.06.041. Review. PubMed PMID: 21871764.
2. Paris B, Bobrie G, Rossignol P, Le Coz S, Chedid A, Plouin PF. Blood pressure and renal outcomes in patients with kidney infarction and hypertension. J Hypertens. 2006 Aug;24(8):1649-54. PubMed PMID: 6877969.
3. Korzets z, plotkin E, Bernheim J, Zissin R. The clinical spectrum of acute renal infarction. Isr Med Assoc J. 2002 Oct; 4(10):781-4. Pubmed PMID: 12389340.
4. Suzer O, Shirkhoda A, Jafri SZ, Madrazo BL, Bis KG, Mastromatteo JF. CT features of renal infarction. Eur J Radiol. 2002 Oct; 44(1):59-64. PubMed PMID: 12350414.

Case Conclusion / Discussion

This patient was sent for a CT abdomen/pelvis with contrast to rule out appendicitis. His appendix was found to be normal, however there was a "geographic area of hypoattenuation of the right lower pole favored to represent renal infarct". CT with contrast is considered the gold standard for diagnosing renal infarct. [1] This is fortunate as the diagnosis was made incidentally during the workup for a different suspected pathology. Renal Infarcts (RI) are uncommon, with incidence believed to be 0.007%, [2] it may also be a commonly missed diagnosis. This is due to the similarity in presentation to more common conditions like appendicitis, nephrolithiasis, and pyelonephritis.

If this patient had presented with CVA tenderness or hematuria, as has been reported, [1] CT without contrast would have been performed. In the setting of acute abdominal/flank pain where no stone is identified, the clinician should consider RI and order an additional CT with contrast. [3] Renal Infarcts may be focal, multifocal, or global. They can also be unilateral or bilateral. [4]

Certain risk factors found in the past medical history make Renal Infarct more likely. The majority of renal infarcts are thromboembolic, however they can also be due vasculitis or hypercoagulation (1). Aortorenal vascular pathologies such as atherosclerosis, aneurysms, or fibromuscular dysplasia can lead to renal infarct. Additionally, cardiogenic emboli caused by conditions such as atrial fibrillation or endocarditis can result in an infarct. This diagnosis should also move up on the differential when patients have conditions like antiphospholipid syndrome or nephrotic syndrome that induce a hypercoagulable state.

This patient was admitted to medicine, and an etiology was not identified despite extensive workup. On initial CT angiogram, a "beading configuration of the right main renal artery suggestive of fibromuscular dysplasia" was noted, but follow-up renal ultrasound was negative for FMD. The patient was noted to have elevated triglycerides making an atherosclerotic embolus a possibility. Additionally, he had an elevated hematocrit and erythropoietin suggestive of a polycythemia vera diagnosis, which would make him hypercoaguable. A Jax2 mutation analysis was ordered, however it was thought that his history of smoking and possible sleep apnea could explain the finding as well. The patient was discharged with symptom resolution, but lost to follow-up.

Pearls

- In a patient with suspected nephrolithiasis and no stone identified on CT without contrast, consider repeating the CT with contrast to identify possible RI.
- Renal Infarcts present similarly to more common pathology. Consider additional risk factors for infarct when developing differentials.