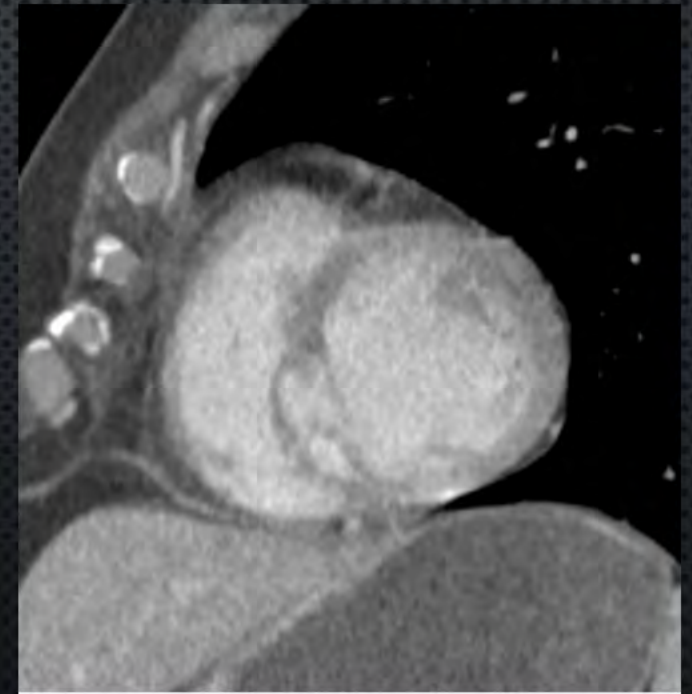
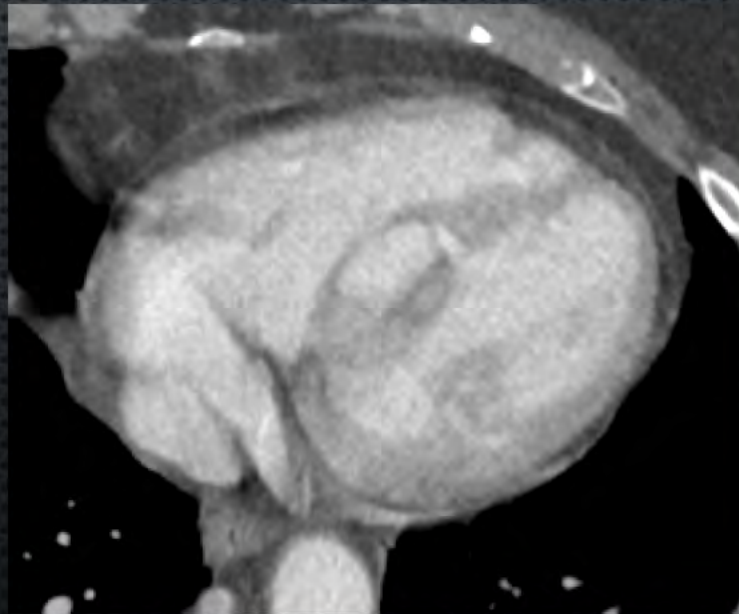
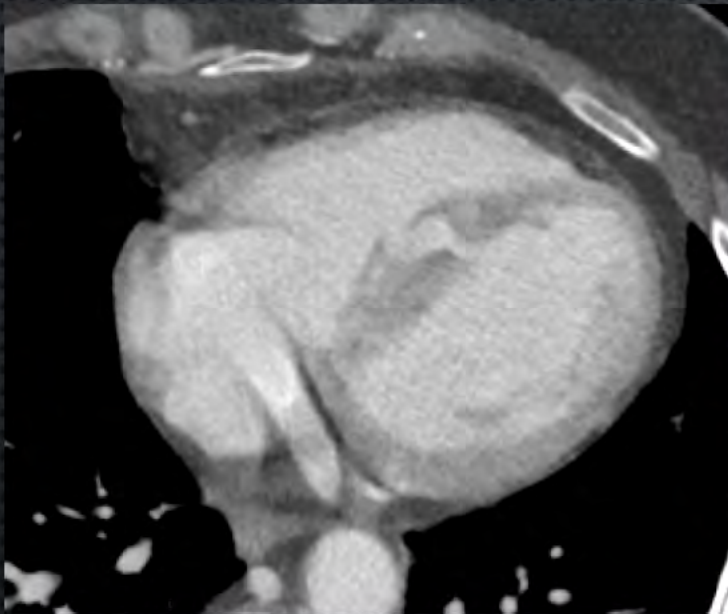


AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

ERGENT ZHIVA, MD
UNIVERSITY OF CINCINNATI

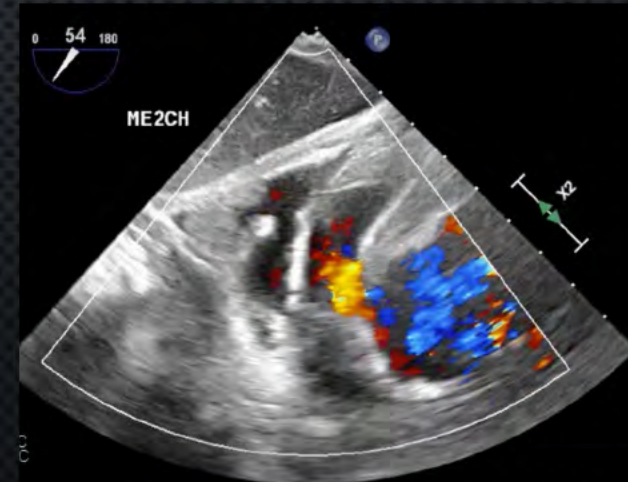
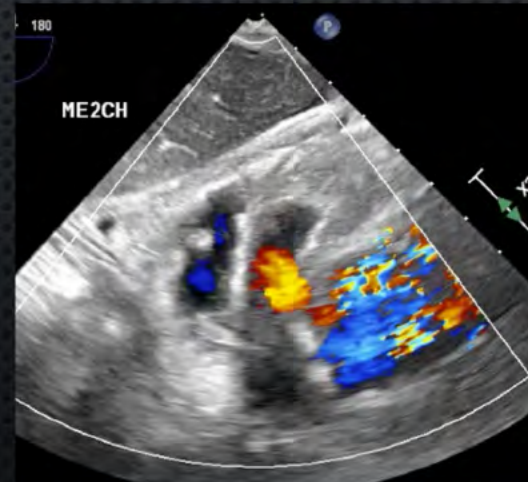
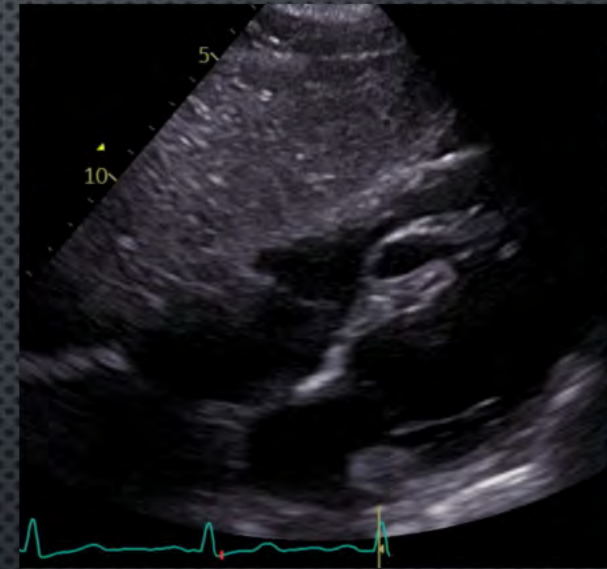
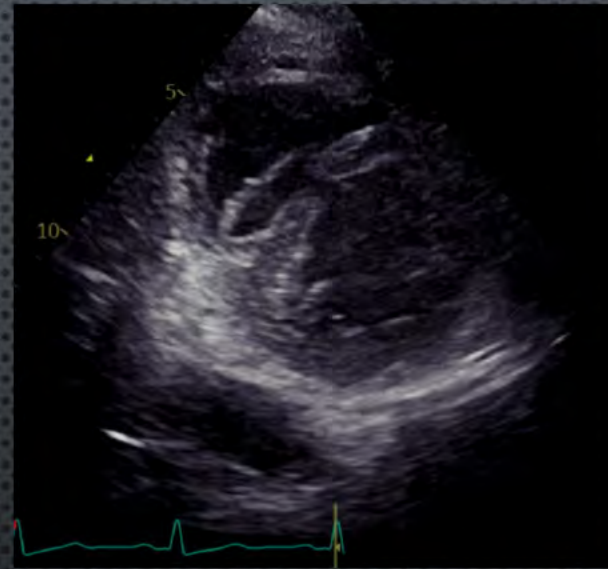
55-YEAR-OLD FEMALE AFTER A MOTOR VEHICLE CRASH (CAR VERSUS POLE). CONTRAST ENHANCED CT (CECT) OF THE CHEST AT PRESENTATION.



AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

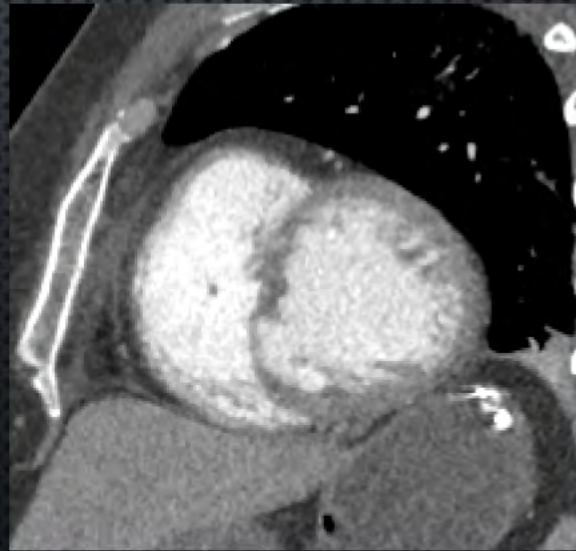
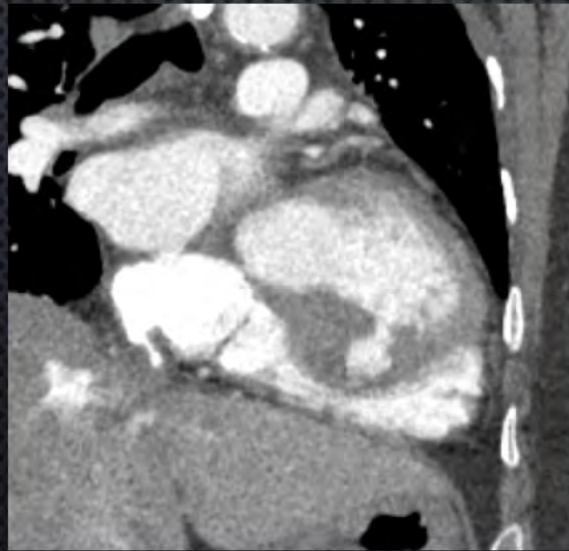
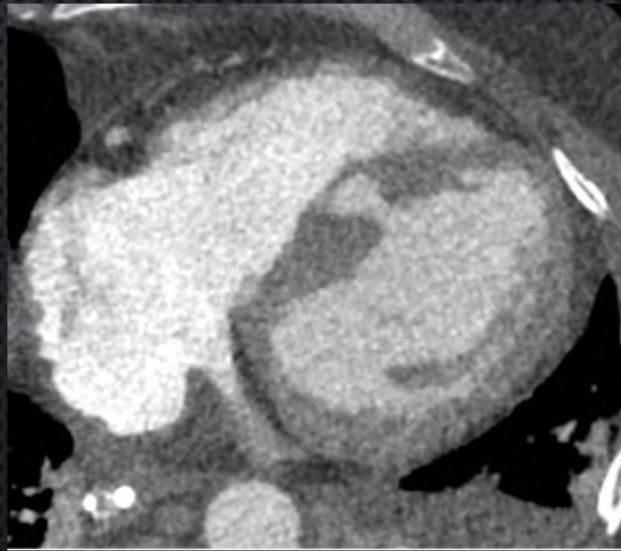
BEDSIDE TRANSTHORACIC
ECHOCARDIOGRAM (TTE) AT
PRESENTATION FOLLOWING CECT

(COURTESY OF NICHOLAS BIONDI,
DO, CARDIOLOGY FELLOW AT THE
UNIVERSITY OF CINCINNATI DEPT.
OF CARDIOLOGY)



AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

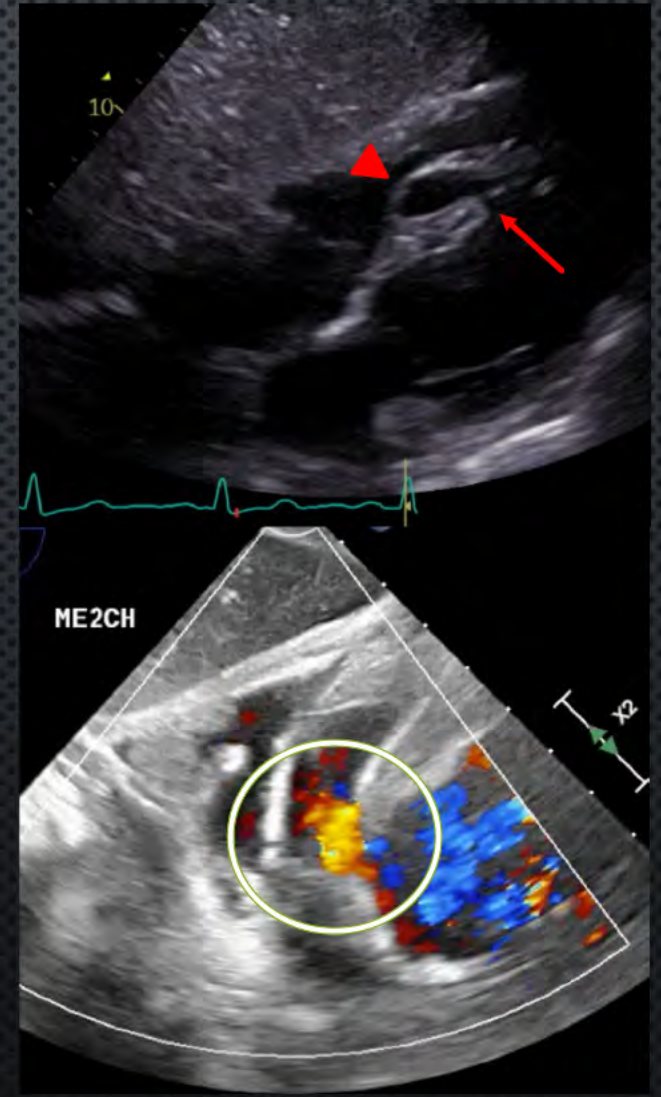
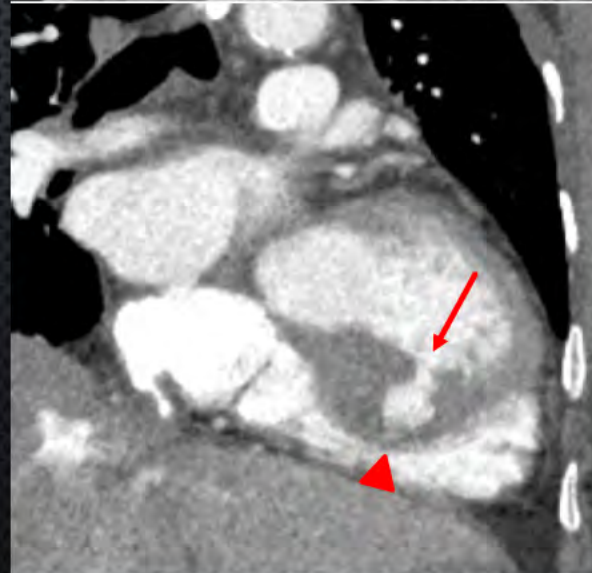
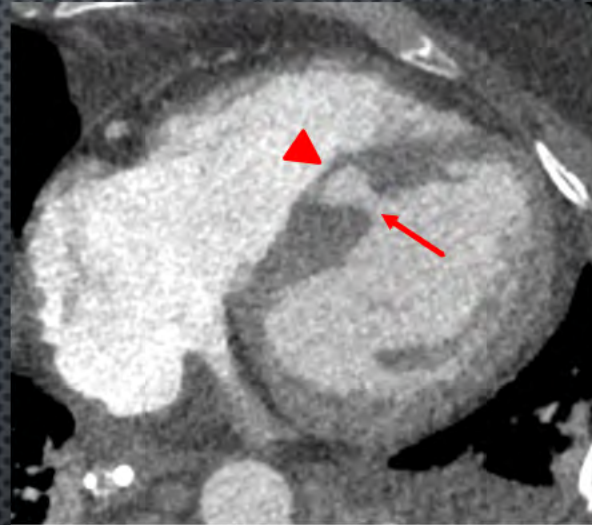
CTA OF CHEST PERFORMED 2 DAYS AFTER INITIAL PRESENTATION



AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

FINDINGS

- CECT IMAGES SHOW A NEAR-FULL THICKNESS VENTRICULAR SEPTAL DEFECT (ARROW) ON THE LEFT VENTRICULAR SIDE WITH THIN RESIDUAL MYOCARDIAL WALL (ARROWHEAD) ON THE RIGHT VENTRICULAR SIDE OF THE SEPTUM.
- TTE SONOGRAPHIC IMAGES SHOW A SIMILAR DEFECT IN THE VENTRICULAR SEPTUM (ARROW) WITH TURBULENT FLOW ON COLOR DOPPLER (CIRCLE).



AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

DIAGNOSIS

- TRAUMATIC VENTRICULAR SEPTAL DEFECT WITH PSEUDOANEURYSM

DIFFERENTIAL DIAGNOSIS

- PRE-EXISTING VENTRICULAR SEPTAL PSEUDOANEURYSM
 - CONGENITAL
 - POST-ISCHEMIC

AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

DISCUSSION

- TRAUMATIC VENTRICULAR SEPTAL PSEUDOANEURYSMS (VSP) ARE A VERY RARE COMPLICATION OF ACUTE BLUNT TRAUMA AND MOST LITERATURE IS COMPRISED OF CASE REPORTS.
- BLUNT CARDIAC INJURIES ARE OFTEN IF NOT ALWAYS ASSOCIATED WITH OTHER BLUNT TRAUMATIC INJURIES THAT CAN ACT AS DISTRACTORS. IN THE ABSENCE OF A MEDIASTINAL HEMATOMA OR PERICARDIAL EFFUSION INTRACARDIAC INJURIES CAN BE OVERLOOKED.
 - BLUNT AORTIC INJURY WAS ALSO PRESENT IN OUR CASE
- TYPICAL IMAGING FINDINGS OF VSP ARE PORTRAYED IN THE PROVIDED CASE INCLUDING THE SEPTAL DEFECT, COMMUNICATION WITH ONE OF VENTRICLES, AND TURBULENT FLOW ON ECHO.
- CECT OR CTA ARE OFTEN THE FIRST EXAM THAT SHOWS THE ABNORMALITY IN THE SETTING OF HIGH ENERGY TRAUMA EVALUATION.
 - MAY BE DETECTED PRE-CT IMAGING WITH BEDSIDE FAST OR SUBXIPHOID ECHO.
- MOTOR VEHICLE COLLISIONS ARE THE MOST FREQUENT MECHANISM OF INJURY
 - CRUSH INJURIES AND BLUNT FORCE DURING A FIGHT HAVE ALSO BEEN DESCRIBED.
- VSD CAN APPEAR IMMEDIATELY AFTER INJURY OR DEVELOP DAYS LATER.
- PRESENTATION CAN BE VARIED, INCLUDING CARDIOGENIC SHOCK, CHEST PAIN, OR ASYMPTOMATIC +/- EKG CHANGES.
- DIAGNOSIS SHOULD BE CONFIRMED WITH TTE, TEE, OR CARDIAC MRI TO EVALUATE WALL MOTION, VENTRICULAR FUNCTION, FLOW RATIOS, AND PRE-OPERATIVE PLANNING.
- SURGICAL OR PERCUTANEOUS REPAIR ARE THE TRADITIONAL TREATMENT OPTIONS
 - CONSERVATIVE MANAGEMENT IN SELECT CASES IF PATIENT IS A POOR SURGICAL CANDIDATE

AMERICAN SOCIETY OF EMERGENCY RADIOLOGY – CASE OF THE DAY

REFERENCES

- BEHRAD GOLSHANI, PAUL DONG, SCOTT EVANS, "TRAUMATIC CARDIAC INJURY: VENTRICULAR PERFORATION CAUGHT ON CT", *CASE REPORTS IN RADIOLOGY*, VOL. 2016, ARTICLE ID 9696107, 3PAGES, 2016. [HTTPS://DOI.ORG/10.1155/2016/9696107](https://doi.org/10.1155/2016/9696107)
- ROJAS CA, CRUITE DM, CHUNG JH. TRAUMATIC VENTRICULAR SEPTAL DEFECT: CHARACTERIZATION WITH ELECTROCARDIOGRAM-GATED CARDIAC COMPUTED TOMOGRAPHY ANGIOGRAPHY. *J THORAC IMAGING*. 2012;27(6):W174-W176. DOI:10.1097/RTI.0b013e31823c3ea5
- YAMASAWA T, KANAOKA Y, FURUSAWA K, ET AL. TREATMENT OF VENTRICULAR SEPTAL PERFORATION CAUSED BY BLUNT TRAUMA USING THE RIGHT VENTRICLE APPROACH: A CASE REPORT. *J CARDIOL CASES*. 2021;24(4):153-156. PUBLISHED 2021 APR 3. DOI:10.1016/J.JCCASE.2021.03.004
- MURATSU A, MUROYA T, ONOE A, ET AL. VENTRICULAR SEPTAL PERFORATION AFTER BLUNT CHEST TRAUMA DUE TO BLOWS FROM A FIST. *ACUTE MED SURG*. 2016;3(4):372-375. PUBLISHED 2016 MAR 10. DOI:10.1002/AMS2.176
- GENONI M, JENNI R, TURINA M. TRAUMATIC VENTRICULAR SEPTAL DEFECT. *HEART* 1997;78:316-318.
- CURRIE, A, VENUGOPAL, P, HAYES, N, QURESHI, S, AUSTIN, C. DELAYED PRESENTATION OF A POST-TRAUMATIC LEFT VENTRICULAR PSEUDOANEURYSM IN A CHILD. *ANN THORAC SURG*. 2010;89(5):1633-1635.
- MACKENZIE JW, LEMOLE GM. PSEUDOANEURYSM OF THE LEFT VENTRICLE. *TEX HEART INST J*. 1994;21(4):296-301. PMID: 7888805; PMCID: PMC325192.
- BEHRLE N, DYKE P, DALABIH A. INTERVENTRICULAR SEPTAL PSEUDOANEURYSM AFTER BLUNT CHEST TRAUMA IN A 6 YEAR OLD: AN ILLUSTRATIVE CASE AND REVIEW. *PEDIATR EMERG CARE*. 2018 FEB;34(2):E39-E40.
- SAMUEL W. REINHARDT, WANDA M. POPESCU, IAN CRANDALL, HOSSAM TANTAWY AND ROBERT L. MCNAMARA. LARGE TRAUMATIC VENTRICULAR SEPTAL DEFECT: A RARE COMPLICATION OF BLUNT CHEST TRAUMA. *CIRCULATION: CARDIOVASCULAR IMAGING*. 2019;12:E008783
- SINGH S, PURI A, NARAIN V, SAHNI J. POST-TRAUMATIC LEFT VENTRICULAR PSEUDOANEURYSM. *INTERACT CARDIOVASC THORAC SURG*. 2012 MAR;14(3):359-61. DOI: 10.1093/ICVTS/IVR105. EPUB 2011 DEC 20.
- ROLLINS, MICHAEL D. MD; KOEHLER, RICHARD P. MD; STEVENS, MARK H. MD, FACS; WALSH, KEVIN J. MD, FACC; DOTY, DONALD B. MD, FACS; PRICE, ROBERT S. MD, FACS; ALLEN, TODD L. MD, FACEP. TRAUMATIC VENTRICULAR SEPTAL DEFECT: CASE REPORT AND REVIEW OF THE ENGLISH LITERATURE SINCE 1970. *THE JOURNAL OF TRAUMA: INJURY, INFECTION, AND CRITICAL CARE: JANUARY 2005 - VOLUME 58 - ISSUE 1 - P 175-180*