Beth Israel Deaconess Medical Center | A teaching hospital of Harvard Medical School | June 1, 2011 | Volume 3, Number 11

Radical Views...

from the Department of Radiology June 2011

Mon	Tues	Wed	Thurs	Fri
3:00-4:00 ED section meeting (monthly) [ED annex, WCC] call Sheila Blalock 4-2506 7:30 - 9:00 (Dr. Smith)	1:00-2:00 MRI meeting (Weekly) [TCC-484] 7:30 - 8:15 Axillary Imaging (Dr. Ferris) 8:15 - 9:00 (Dr. Armada)	1 Weekly Wed Section Meetings: 11:00-12:00 MSK clinical conf 12:00-1:00 Thoracic Imaging, GI Oncology/GU Oncology 3:00-4:00 Mammo [TCC-484] 7:30 - 9:00 Holiday Call Lottery!	2 Weekly Thurs Section Meetings: 12:00 - 1:30 Abd [WCC-354] 12:00-1:00 MSK 7:30 - 8:15 Case Conference (Dr. Brewer) 8:15 - 9:00 Case Conference (Dr. Rojas)	3 8:00-9:00 Grand Rounds: Quality Assurance 12:00 - 1:00 Neuro conference (Dr. Bhadelia)
6 7:30 - 9:00 (Dr. Bennett)	7 7:30 - 8:15 Board Review (Women's Fellow) 10:30-11:30 Nuc Med meeting (GZ-103)	8 7:30 - 8:15 US-TBA (Dr. Romero) 8:15 - 9:00 NM board review (Dr. Donohoe) 7:15 - 8:00 US meeting (WCC-304A Gallery)	9 7:30 - 8:15 Cases for 1st-3rd years (Dr. Hochman) 8:15 - 9:00 MSK Quarterly QA Conference (Dr. Eisenberg & Sr Resident) 2:00-3:00 West Med-Rads	10 **12:00 Fleischner Lecture**: Fiction & facts about breast cancer screening - We should ***not*** agree to disagree (Dr. Daniel Kopans, MGH)
13 7:30 - 9:00 (Dr. Wei) **EVENT: Mentoring Program:** Statistics for radiology researchers (Dr. Long Ngo) 12:00-1:00 pm	14 7:30 - 8:15 Board Review (Fellow) 8:15-9:00 (Dr. Reddy) 8:00 - 9:00 IR meeting [West Recovery Rm]	15 7:30 - 8:15 Chest case conference (Dr. Bankier) 7:30 - 9:00 Chest case conference (Dr. Bankier)	16 7:30 - 8:15 Case Conference (Dr. Ramachandran) 8:15 - 9:00 Case conference (Dr. Hackney)	17 8:00-9:00 Grand Rounds: Chiefs Rounds 12:00 - 1:00 Neuro conference (Dr. Peri)
20 7:30 - 9:00 (Dr. Sun)	21 7:30 - 8:15 Breast Implants (Dr. Slanetz) 8:15 - 9:00 Cases (Dr. Slanetz) 2:00 - 3:00 West Med-Rads 10:30-11:30 Nuc Med meeting (GZ-103)	22 7:30 - 8:15 Chest board review (Dr. McArdle) 8:15-9:00 NM board review (Dr. Parker)	23 7:30 - 8:15 End of Year Fellow Talk (Dr. Melenevsky) 8:15-9:00 End of Year Fellow Talk (Dr. Siegal)	24 12:00 - 1:00 Neuro (Dr. Moonis)
27 7:30 - 9:00 (Dr. Raptopoulos)	28 7:30 - 8:15 Case Conference (Fellow) 8:15-9:00	29 7:30 - 9:00 Chest - TBA	30 7:30 - 8:15 Case Conference (Dr. Case) 8:15-9:00 Case Conference (Dr. Fisher)	

June Distinguished Visiting Professor

Daniel B. Kopans, MD - will deliver the 18th Annual Risa & Felix Fleischner Lecture, "**Fiction & Facts About Breast Cancer Screening - We Should *Not* Agree to Disagree"** on Friday, June 10, 2011 • 12 Noon, Sherman Auditorium, East Campus

Dr. Kopans is a Professor of Radiology at Harvard Medical School and Senior Radiologist and founder of the Breast Imaging Division in the Department of Radiology at MGH. He is one of the world's leading experts in breast cancer detection and diagnosis. In 1984 he was the lead author on a paper in the New England Journal of Medicine describing the developing subspecialty of "Breast Imaging". Dr. Kopans has been at the forefront of combining mammography, ultrasound, and other imaging tests to aid in the detection and diagnosis of breast cancer.

Kopans received his medical degree from Harvard Medical School in 1972, where he was also inducted into the Alpha Omega Alpha Honor Society. Following a medical internship at Dartmouth Medical School, Dr. Kopans completed his residency training in 1977 at Massachusetts General Hospital in diagnostic radiology, where he received board certification and was then appointed to the staff of the Department of Radiology at MGH one year later. The American Society of Breast Disease honored Daniel Kopans with the 2007 Pathfinder Award in Breast Imaging for his work in helping to improve breast cancer survival. He is also a recipient of a gold medal from the Society for Breast Imaging.

Dr. Kopans has authored over 200 scientific articles and is the inventor of the ***Kopans Wire*** used in needle localization, making it possible for radiologists to accurately guide surgeons to lesions detected by mammography which in turn,

made it possible to diagnose breast cancers at a smaller size and earlier stage excisional breast biopsies. He was also instrumental in the creation of the Breast Imaging Reporting and Data System (BI-RADS) coding system which helped to standardize the reporting of mammography results. Dr. Kopans served as co-chair of the American College of Radiology committee that developed BI-RADS which is now used in all American mammography reports. Dr. Kopans holds several mammography-related patents including one for a tomosynthesis system for breast imaging.

A champion of mammography screening, Dr. Kopans emerged as a leading figure in the debate over the advisability of screening mammography in the 1980s. Dr. Kopans led the defense of screening for women aged 40–49 when an effort was made, in the 1990s, to deny these women access to screening. Following a decision by the National Cancer Institute to drop support for screening women in their 40s, and subsequently following a series of articles in the New York Times by Gina Kolata which questioned the value of screening mammography for those in the 40-50 age group, Dr. Kopans fought a prolonged battle, arguing in favor of the benefits of mammography. By 1997, the National Cancer Institute had reversed course and once again supported screening for women in their 40s. However, the 2009 United States Preventive Services Task Force guidelines no longer recommend routine screening in women aged 40 to 49. With his Fleischner Lecture, *Fiction & Facts About Breast Cancer Screening - We Should Not Agree to Disagree,* Dr. Kopans continues the fight to improve the rates of breast cancer survival.

DEPARTMENTAL NEWS, AWARDS & HONORS

FROM THE CHIEF

Jonathan B. Kruskal, MD, PhD

- **Farewell Bob Lenkinski**

  As you may have heard, we wil be saying farewell to yet another member of our MRI section. **Dr. Robert Lenkinksi**, Vice Chair for Research and Director of Experimental Radiology and the 3T MR Spectroscopy Program, will be joining Drs. Neil Rofsky and Ivan Pedrosa at the University of Texas, Southwestern in Dallas. Like Dr. Rofsky, Dr. Lenkinski will continue in a collborative research and mentoring role at BIDMC. We wish him the best! (Dr. Lenkinski hosted his last Morrison Research Day on May 23 to great applause. Please see a recap of the event starting on pg. 5)

- **Congratulations Deborah Levine**

  At the April 2011 Annual Meeting and Chapter Leadership Conference (AMCLC) of the ACR, **Dr. Deborah Levine**, our Vice Chair of Academic Affairs, Co-chief of Ultrasound and Director of Ob/Gyn Ultrasound, was elected to serve a second term on the ACR Board of Chancellors as ***Chair of the ACR Ultrasound Commission****!*

Dr. Levine in full regalia walks down the aisle with new honorary fellow Byung Ihn Choi from Korea at the ACR ceremony in Washington, DC, April, 2011.

The future of organized American Medicine! BIDMC Residents pose on Capitol Hill as part of the lobbying ACR annual meeting and chapter leadership conference May 2011 400 radioligists to congress. L to R: 1st yr residents, Samir Shah and Mark Ashkan, Residency Director Priscilla Slanetz, and 2nd yr residents Yiming Gao, and Ammar Sarwar. (Not shown - Max Rosen who had to run back for his coat!)

- **Congratulations Vandana Dialani**

Dear colleagues, I am pleased to announce that **Dr. Vandana Dialani** has been appointed ***Associate Director of Clinical Breast MRI*** at Beth Israel Deaconess Medical Center. She will be working closely with me in streamlining services at BIDMC and our community sites. Please welcome Dr. Dialani to her new role.

- Priscilla Slanetz

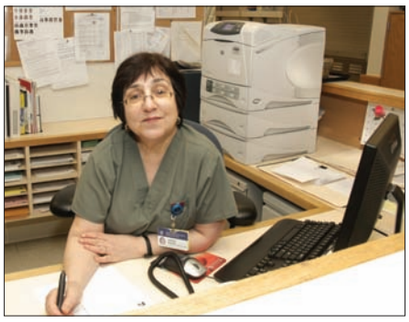
KUDOS - Please join us in congratulating the following staff for outstanding patient care and service

Nuclear Medicine

Lymphoscintigraphy patients come to the East nuclear medicine waiting room gowned. The East waiting room is filled with outpatients. Recognizing that it is uncomfortable for a gowned patient to mix with patients in street clothes, **Mary Ritchie** (right) checks them in and then wheels them down to the exam area so they can wait for their test in more privacy. Mary took on this duty on her own as a courtesy to the patients.

Support Services

Saliha Gardner is this month's recipient of the Radiology Support Services Quality Spot on for Service Excellence Initiative Program. (Not shown)



Janice Kulas (left) recently received a wonderful complementary letter from a patient on her excellent customer service performance. "Janice is always gracious, courteous, efficient, and effective. I often take all of this for granted. This one time I wish to write to you to bring this level of service to your attention". Janice, who is the face of the IR unit on the East, has effectively made a difference in numerous patients' lives that come into the department.

Clinical Faculty: We also received the following 2 letters for Drs. Reddy and Shaheen:

Arra Suresh Reddy, Chief of Interventional Neuroradiolog, BIDMC

April 28, 2011

To Whom it May Concern:

Four months ago to the day, I underwent surgery with Dr. Suresh Reddy who, in my eyes, performed a miracle. Four months previously, I had the misfortune of having a syringe needle break off and become deeply embedded in my back. It took some time to find a doctor who could approach this challenge. With the good counsel of Beth Israel Deaconess Hospital's Dr. John Keel, I was referred to Dr. Reddy. With use of a fluoroscope, Dr. Reddy inserted a hard catheter, was able to peer inside and use a kind of tweezers. After multiple attempts, he was able to grab the tiny inch-long needle and extract it. Wow! I was so fortunate to have been referred to a doctor with such courage, expertise, skill, patience and persistence. I am sure many others would have given up after the first few tries and referred me on for major surgery. As it was, I was in surgery only about 20 minutes and right afterwards was able to get up, walk out of the hospital and go home. It was easy (for me), quick and caused no significant residual discomfort.

As the time has past since the surgery and I have felt better and better, and my appreciation for Dr. Reddy's work has continued to grow. During the time when the needle remained embedded, my back problems got worse, exacerbated by hip arthritis. It had been hard for me then to say what came first, the arthritis pain and discomfort or the problems stemming from the embedded needle, But once the needle was removed, what a difference! I know now that the irritation and structural instability had been increased many times by the embedded needle. Now, free of that, I have gotten to a much better baseline. I recommend Dr. Reddy and his team without reservation.

Please feel free to use this letter as a testimonial to give to anyone who might need to seek Dr. Reddy's services.

Sincerely,

Name withheld for patient confidentiality

مؤسسة الحسين للسرطان
KING HUSSEIN CANCER FOUNDATION

Office of HRH Princess Dina Mired
Um Otheina, Saad Bin Abi Waqqas St.
P.O.Box: 35102 Amman 11180 Jordan

Date: May 9th, 2011
Ref.: 12/25/688

Dr. Max P. Rosen
Executive Vice-Chairman Radiology
Beth Israel Deaconess Medical Center
Associate Professor of Radiology - Harvard Medical School

Rola Shaheen, Chief of Radiology, Harrington Memorial Hospital/BIDMC

Dear Dr. Rosen,

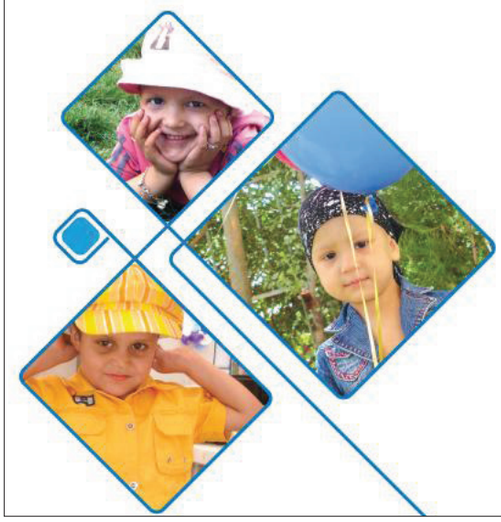
I hope my letter finds you in good health.

I wanted to thank you for your support with the course ***"The Essentials of Multimodality Breast Imaging with Clinical & Pathological correlation"***, which was hosted by the King Hussein Cancer Center on April 16-17, 2011. Dr. Rola Shaheen played an instrumental role in making this course a great success, resulting in the benefit of radiologists from Jordan, Egypt, Yemen, Palestine, and Saudi Arabia.

Dr. Shaheen directed this course, which provided invaluable information on multidisciplinary aspects of breast disease, mammographic, sonographic and MR findings of breast disease, multimodality breast imaging studies, image-guided breast interventions and requirements needed for an efficient breast care team. The course was exceptionally important as it gave radiologists in the region the chance to take part in a unique learning opportunity which would not have been available to them otherwise.

This is why receiving such support is so essential for the *King Hussein Cancer Foundation & Center,* as it allows us to build the capacities of local and regional health care professionals with the knowledge and skills needed to raise awareness about cancer and continue saving lives of cancer patients in the region.

On behalf of the *King Hussein Cancer Foundation and Center* and the *Jordan Breast Cancer Program*, I thank you again for your support and I hope that you will be able to visit us sometime in Jordan to see our work firsthand.



Warmest regards,

Dina Mired
Director General

- **Speaking of Kudos, we would also like to apologise for omissions in our Long Service Awards list in April, 2011.**

Please see pg. 11 for a corrected and updated listing: Fotini Kourtelidis RT R MR, MRI Research Technologist also received her 20 year service award.

MORRISON RESEARCH DAY 2011

This year's Morrison Research Day featured 13 outstanding talks and 15 posters such that the judges, Drs. Deborah Burstein, Aaron Grant, Robert Lenkinski and John Frangioni (guest judge for clinical only) acknowledged a record 9 participants for their research efforts, representing work from clinical and research fellows, residents, and students (HMS, HST, etc). Distinguished and visting professor Dr. Reuben Mezrich delivered the 16th Annual Lawrie B. Morrison lecture, *"Are CT Scans Carcinogenic?"*, a timely, relevant and very insightful talk. The day was capped with the distribution of the Morrison awards and a tasy buffet reception. Below are the abstracts of the winning presentations. *Thanks to Dr. Diana Litmanovich for suggesting their inclusion!*

Mai-Lan Ho, MD (2nd yr resident) - Beyond semicircular canal dehiscence: spectrum of third-window anomalies

Third window anomalies involve pathologic communication between the middle and inner ear, disrupting the normal function of the oval and round windows. This results in conductive hearing loss, as well as sound-induced (Tullio phenomenon) and pressure-induced (Hennebert symptom) vertigo. Several different etiologies and anatomic locations have been described, but assessment has been limited by low prevalence and incomplete clinical correlation.

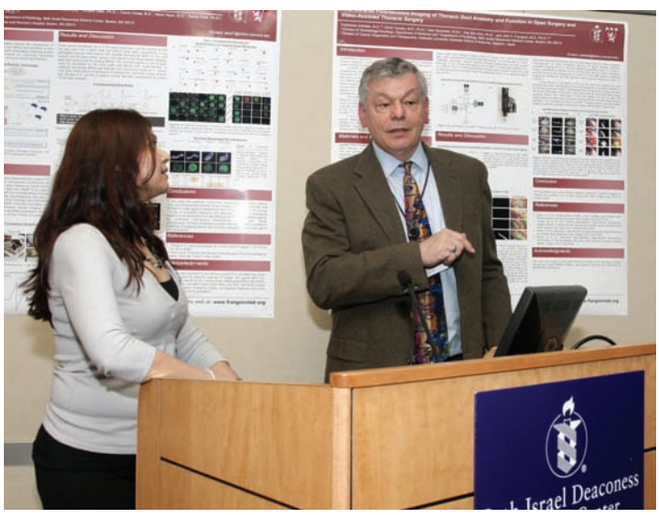
We performed a comprehensive clinicoradiologic review of 323 third window anomalies diagnosed over the past 10 years. Mean age was 44.3 years, with 48% male and 52% female patients. Presenting symptoms included hearing loss, classic/nonclassic vertigo, tinnitus, autophony, otorrhea, otalgia, and oscillopsia. Audiometry revealed 32% normal, 25% conductive, 25% sensorineural, and 18% mixed hearing loss. Laterality was right-sided in 22%, left-sided in 26%, and bilateral in 50%.

Etiologies included 40% congenital, 32% idiopathic, 14% cholesteatoma, 11% trauma/iatrogenic, 7% vascular, 6% malignancy, 5% infection, and 0.3% inflammation. Locations were 70% semicircular canals, 45% vestibule, 32% cochlea, and 9% vascular foramina.

Surgery was performed in 44% of patients and included plugging, myringotomy, hearing aids, cochlear implants, labyrinthectomy, tympanoplasty/ossicular reconstruction, and mastoidectomy.

In conclusion, third window anomalies may present with nonspecific clinical findings, including unexplained conductive hearing loss and vestibular signs. Thus, imaging is critical for identifying the underlying etiology, site and extent of disease, and associated findings.

Payal Patel, MD (Abd fellow) - Value of intravenous (IV) contrast-enhanced MDCT in evaluation of adult patients presenting with hematuria found to have calculi on non-contrast scan.



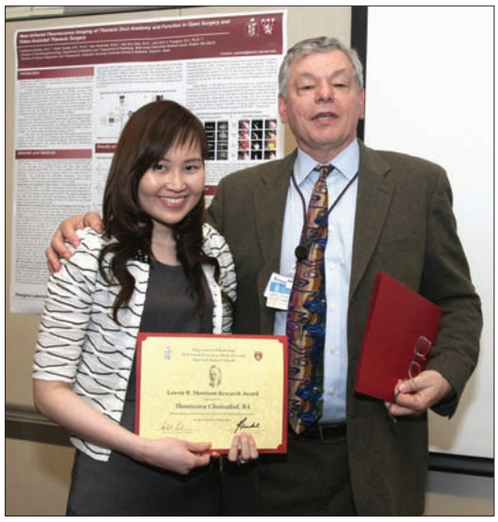
Purpose: To investigate the value of performing IV contrast-enhanced CT in patients with hematuria in whom calculi are detected on unenhanced CT.

Method & Materials: The IRB approved this retrospective study. Patient informed consent was waived. From Jan 2006 to Nov 2010, 3171 patients had MDCT with clinical indication of painless hematuria. Of those, CT exam was done without IV contrast in 562. In the remaining 2609, MDCT was performed with our CT Urogram protocol: unenhanced low dose, followed by enhanced split-bolus nephrographic/pyelographic phase MDCT. Of those, 232 patients (8.9%) had urinary tract (UT) calculi and comprise the study population. The remaining 2377 patients had no calculi on the non-contrast scans and serve as controls. Age, gender, indication and CT findings were recorded for each patient.

Results: Of those without UT calculi (control group), 2261 of 2377 (95.1%) had no UT findings to account for hematuria and 116 (4.9%; 95% Confidence Interval [CI] 4.2%-6.0%) had abnormalities that may account for hematuria. In 232 study patients, average age was 60.8 years; range 30-90 years; 69% were male and 31% female. Of the 232 study patients with UT calculi on the unenhanced scan, 200 (86,2%) had no additional findings and 32 (13.8%; 95% CI 9.4%-18.2%) had additional findings that could account for hematuria, significantly higher ($p<0.0001$) than in patients without UT calculi. On the unenhanced scans, notable findings were adequately visible in 5, while partially seen/suggested in 16, and not seen at all in 11 exams. The 32 abnormalities include 4 patients with renal masses (3 neoplastic and 1 inflammatory), 4 urothelial malignancies, 1 transient urinary tract clot, 2 early/evolving pyelonephritis or infarcts, 3 bladder carcinomas, 2 multiple cortical defects/scars, 4 papillary/calyceal/medullary abnormalities, 5 congenital/hereditary renal anomalies, 7 large or multiple parapelvic cysts/complex renal cysts, 4 cystitis/BPH/trabeculated bladder with diverticula, and 1 colovesicular fistula.

Conclusion: In adult patients with hematuria, presence of UT calculi on unenhanced CT scan increases likelihood of additional UT abnormalities that are better evaluated on IV contrast-enhanced studies.

Thanissara Chansakul, BA (HMS 4th Yr) - Enlarging Biopsy Proven Fibroadenoma: Is Surgical Excision Necessary?



PURPOSE: Fibroadenomas diagnosed by core biopsy are routinely surgically excised if they enlarge on clinical or imaging followup to exclude an associated malignancy. As malignancy is rarely found, this study was undertaken to determine whether excision of enlarging biopsy-proven fibroadenomas is still warranted.

MATERIALS AND METHODS: Review of our institutional pathology database from 2000 to 2010 identified 1117 cases of fibroadenoma, and retrospective chart review, including review of pathology and imaging findings, was performed.

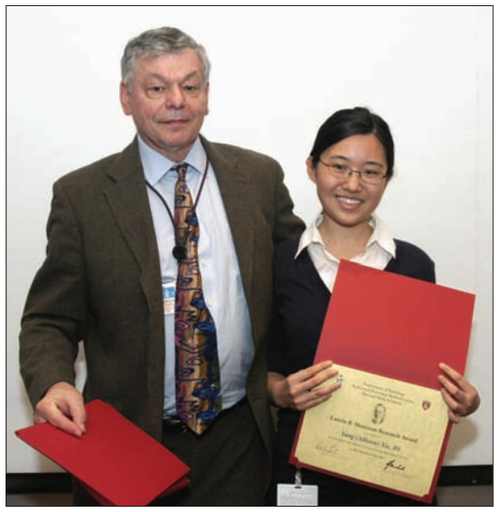
RESULTS: 1117 cases of fibroadenoma were identified in a population of women ranging from ages 17 to 78. Of these, 378 (33.8%) were diagnosed by ultrasound core needle biopsy.

Additionally, 27 cases (2.4%) of lesions presumed to be fibroadenoma on ultrasound were subsequently core biopsied or excised secondary to enlargement on followup imaging. All 27 (100%) were pathologically proven to be fibroadenoma.

Of the 378 cases of core biopsy-proven fibroadenoma, 17 (4.5%) enlarged and were subsequently excised with surgical pathology demonstrating fibroadenoma in all 17 (100%) cases; 201 (53.2%) underwent imaging followup for a mean period of 31.5 months demonstrating no interval enlargement; two (0.5%) underwent imaging followup with enlargement on initial followup, however, were not excised and demonstrated subsequent stability in size for mean followup period of 18 months; 102 (27.0%) were not followed or were lost to followup; and 24 (6.3%) demonstrated qualifying pathologic features (e.g. associated atypia) in addition to fibroadenoma.

CONCLUSION: The percentage of biopsy-proven, uncomplicated fibroadenomas that enlarge on imaging followup is low. Of such lesions that did enlarge and were excised, none demonstrated malignancy at surgical excision, suggesting excision is not necessary for biopsy-proven, uncomplicated fibroadenomas.

Yang (Allison) Xie, BS (Research Assistant) - Enhanced Prostate Cancer Diagnosis through Simultaneous NIR Fluorescent Immunofluorescence and H&E Staining

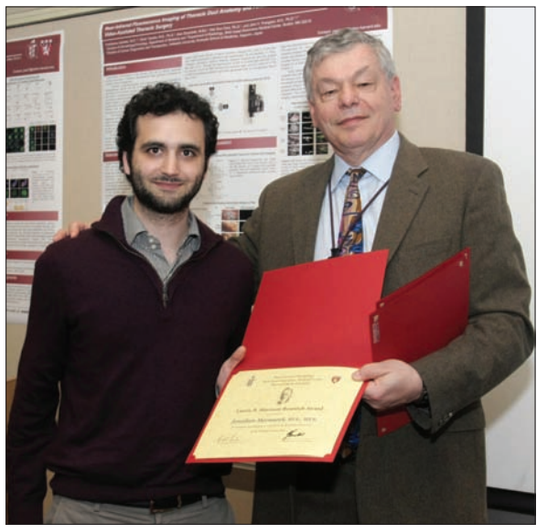


Histological diagnosis of cancer by a trained pathologist is the gold standard in oncology. Classical pathological diagnosis is based on standard hematoxylin and eosin (H&E) staining, where immunostaining is periodically used to confirm the diagnosis determined through H&E staining. Significant interobserver variability is seen between pathologist in a variety of cancer types. In prostate cancer diagnosis high intraobserver variability is seen using the standard H&E Gleason-Grading system. Immunostaining of basal cells in normal prostate glands and alpha-methylacyl-CoA racemase (AMACR) protein found only in malignant cells is periodically used on consecutive slides to enhance diagnostic accuracy. However, since tissue will be a minimum of 5 µm apart and likely further consecutively stained slides are difficult to co-register. This is especially true in prostate biopsy specimens where little tissue is removed from a patient and an occult gland could disappear from one tissue section to the next. To overcome this problem, our laboratory has developed technology to simultaneous immunostain and H&E stain slides using near-infrared (NIR) fluorophores. Fluorophores with absorption and emission in the NIR window (700-900 nm) are excited and emit at redder wavelengths than hematoxylin and eosin, allowing NIR immunofluorescence to be used in conjunction with H&E staining. This technology enhances cancer diagnosis without altering the conventional gold standard H&E staining as NIR fluorophores are invisible to the human eye.

Sylvain Gioux, PhD (Research Fellow) - Preclinical and Clinical Validation of a Novel Oxygenation Imaging System

Two major disadvantages of currently available oxygenation probes are the need for contact with the skin and long measurement stabilization times. We have designed a novel oxygenation imaging device based on spatial frequency domain and spectral principles, which was validated pre-clinically on pigs and clinically on humans. Importantly, this imaging system has been designed to operate under the rigorous conditions of an operating room. Optical properties reconstruction and wavelength selection have been optimized to allow fast and reliable oxyhemoglobin and deoxyhemoglobin imaging under realistic surgical conditions. In vivo preclinical validation against commercially available contact oxygenation probes was performed on pigs undergoing arterial and venous occlusions. Finally, the device was used clinically to image skin flap oxygenation during a pilot study on women undergoing breast reconstruction after mastectomy. A novel illumination head containing a spatial light modulator (SLM) and a novel fiber-coupled high power light source were constructed. Pre-clinical experiments showed similar values between local probes and the oxygenation imaging system. During pilot clinical studies, the imaging system was able to provide near real-time oxyhemoglobin, deoxyhemoglobin, and saturation measurements over large fields of view (> 5 cm diameter). This novel optical-based oxygenation imaging system has the potential to replace contact probes during human surgery and provide quantitative, wide-field measurements in near real-time.

Jonathan Marmurek, BESc, MESc (HST PhD student) - A hydroxyapatite-targeted gadolinium contrast agent for MRI of microcalcification in malignant breast cancer



Detection of solid microcalcification by x-ray and computed tomography (CT) mammography is the primary clinical imaging finding for initial identification breast cancer tumors. Hydroxyapatite (HA) microcalcifications are a hallmark of malignant breast cancer, but the chemical composition of microcalcifications cannot be determined by x-ray/CT mammography. MRI has recently become a useful screening tool for women at high-risk of invasive breast cancer, but is unable to detect solid calcified structures using conventional techniques. We have developed a high-relaxivity gadolinium-bisphosphonate contrast agent with a short ligand-to-agent linker that exhibits specific adsorption to hydroxyapatite. Slow-rigid gadolinium (Gd) chelates with long rotational correlation times are expected to have high longitudinal relaxivities, and previous work has demonstrated that shorter linkers between a Gd-chelate and targeting-ligand reduce rotational freedom when bound. Ultra-short echo-time (UTE) MRI was performed to assess the specificity and sensitivity of the contrast agent in-vitro. The rigidly adsorbed contrast agent was detectable at 1 μM and had an apparent relaxivity approximately 102-fold higher than that of the free agent in solution and conventional small molecule T1 relaxation agents. Preliminary studies showed that the HA-bound agent can be detected and distinguished from calcium oxalate in-vivo.

Posters:

Nicholas J. Durr, PhD (Research Fellow) - Optical Systems for a Next Generation FLARE™ Device

Multiple Fluorescence-Assisted Resection and Exploration (FLARE™) systems are currently being used for research and clinical trials in operating rooms around the world. These novel systems provide real-time guidance to surgeons for targeting tissues of interest and avoiding sensitive structures with minimal impact on the typical operating room workflow. However, current FLARE™ systems are impractical for dissemination. We are investigating the use of several new lightweight and inexpensive technologies that will enable large-scale production of the FLARE™ systems. First, we will generate visible and near-infrared light in the instrument cart and deliver the light to the surgical field through a fiber optic bundle instead of using light emitting diodes mounted to the imaging head. This allows for the creation of a compact luminary and minimizes heat generation near the heat-sensitive detectors. Second, we are building a custom zoom lens that is corrected for high resolution at visible and near-infrared wavelengths. Finally, we are building a custom 3-channel imaging head, which will provide excellent performance at a low cost and eliminate the redundant parts associated with off-the-shelf solutions. Using these technologies, our next-generation FLARE™ system will be poised for large-scale distribution and have the potential to improve surgical outcomes.

Rachel Scheidegger, BS (HST PhD Student) - Amide Proton Transfer Imaging with Continuous Wave Dual Frequency Saturation Can Detect the Amide Proton Peak in the Z-Spectrum Acquired at 3T

We present a chemical exchange saturation transfer (CEST) imaging sequence with continuous wave saturation preparation relying on a 3-way subtraction between label frequency, control frequency, and simultaneous dual frequency RF irradiation to remove B0 inhomogeneity and intrinsic magnetization transfer (MT) from in-vivo images. We demonstrate that this approach yields amide proton transfer (APT) images free of susceptibility artifacts and MT asymmetry, without any additional B0 correction. This allows clear and robust measurement of the amide proton peak in the z-spectrum acquired at 3T. This new method may improve the feasibility of quantifying exchange rates in-vivo and measuring pH. *(Rachel was unable to accept her award due to her being on rotation)*

Leo L Tsai, MD PhD MSc (2nd yr resident) - Correlation of Apical Defects and Overlying Soft Tissue Using a High-sensitivity Dedicated Cardiac Camera

Myocardial perfusion imaging performed on a high-sensitivity, dedicated cardiac camera using software resolution recovery appeared to result in a substantially higher rate of apparent apical perfusion defects. Our objective was to measure the rate and severity of these defects, to characterize the clinical correlates, and to see if the presence of these defects was influenced by the total number of iterative loops used during image reconstruction.

534 myocardial perfusion studies performed at BIDMC from August–December 2009 were reviewed. 96 studies demonstrated apical defects. Of these, 66 (68.8 %) were scored as artifacts and 30 (31.2 %) as true perfusion defects. There was a positive correlation with female gender ($p < 0.001$), the presence of overlying anterior chest soft tissues ($p < 0.002$), and the presence of breast cleavage ($p < 0.008$). Negative associations were seen between the artifacts and angiography-confirmed 1-3 vessel disease ($p < 0.018$) and elevated cardiac risk (10% risk for acute coronary syndromes at 10 years, $p < 0.0001$). Thus, at least some of the apical defects were false.

There was a significant perceived improvement of apical defects following reconstruction with fewer iterative loops ($p < 0.003$), suggesting that the reconstruction method also plays a role in the presence or exacerbation of apical artifacts.

OUTREACH 2011 - Radiology at the BIDMC Health Fair

On Thursday, May 26, the BIDMC community was given "a passport to health and wellness" in the Shapiro Atrium Lobby. Sponsored by Human Reources and the Tanger BeWell Center, partcipants were offered opportunities to get "medically, financially and physically fit with free services including sun damage screening, chair massage, cholesterol and blood pressure screenings, balance assessment, peak flow screening, Computerized Heart Health Assessment, bone density screening, Retirement Services and much more during the second annual A Passport to Your Health wellness fair. Among the Departments and businesses featured at the fair were HMFP Radiology Outpatient Services, i.e., **Mass Vein Care** hosted by HMFP Radiology Outpatient Practice Manager, **Jane Corey**, and interventional radiologist **Felipe Collares** and a community **screening breast imaging** initiative also by Jane Corey and **Olga Augustus**, HMFP Community Manager for Breast Imaging.

Jane Corey and Olga Augustus

Jane Corey and Dr. Felipe Collares

The Health Fair launched a new outreach project for HMFP Breast Imaging to increase awareness of the need for breast cancer screening and the convenience and availability afforded by our community sites.

Breakfast anyone?

Following last month's Grand Rounds presentation, the department was invited to breakfast with **Dr. Mark Bernstein** (far right), after his May 20th Grand Rounds presentation, "Imaging Trauma in Pregnancy." Hosted by the ED Radiology section (ED annex, 1st floor WCC), the breakfast was a nice opportunity to meet and chat with our Grand Rounds Speaker. (featured from the left: Drs. **Arti Sekhar**, **Sejal Shah**, ED Section Chief **Marc Camacho**, and Mark Bernstein.

Do you know... about the new InfoRad Link at PACS Workstations?

To streamline the submissions for RadReview, critical findings and QA cases, the InfoRadiology web site is now connected with GE Centricity.

A link called "InfoRadiology" will appeal at the right bottom corner of the Centricity window when an exam is opened.

One click of this link will transfer the clip number of the exam to InfoRadiology.

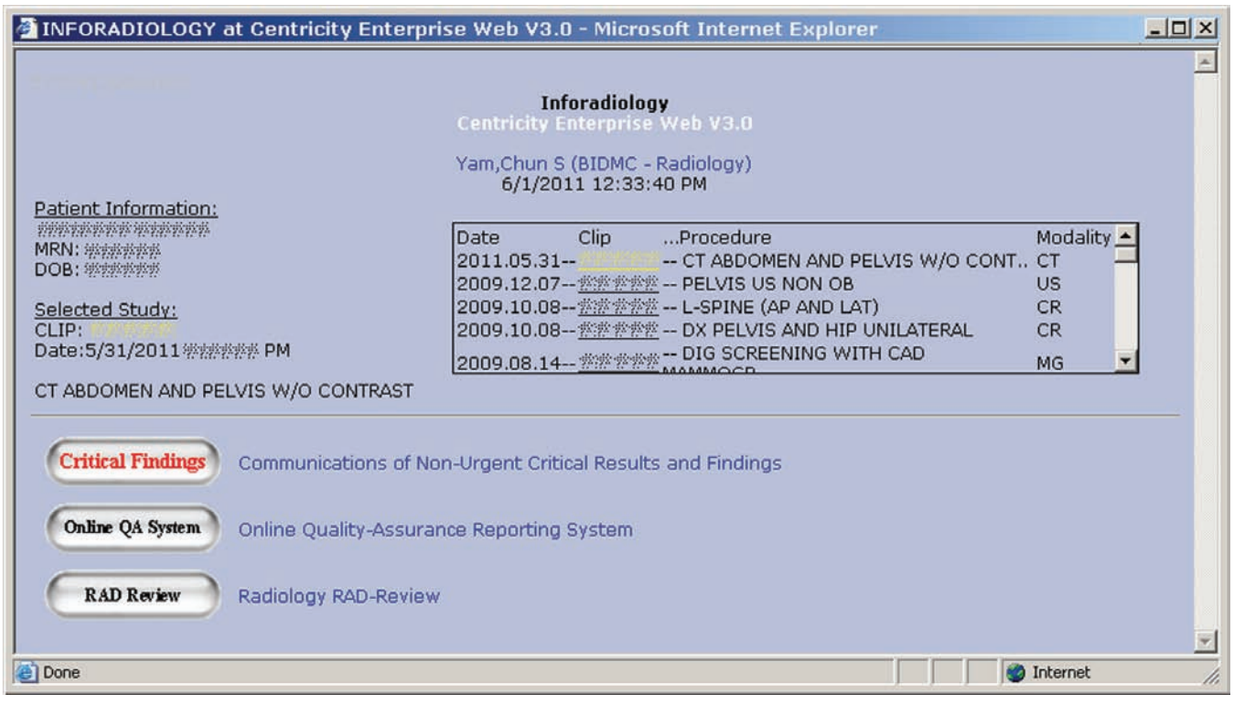
If your workstation does not have this link, please let me know and we can install this for you.

Or, you can do this yourself at your PACS workstation with the following steps:

[1] Go to http://Inforad <http://inforad/> at the web browser

[2] Click on "Install" and following the directions

– Sam Yam, PhD
Director, Departmental Computing



Do you know... about our Universal Protocol?

Medical Center Policy #CP-33 outlines our Universal Protocol, also know as the guidelines for the confirmation of correct patient, correct procedure and correct site for patients undergoing invasive or high-risk procedures being performed outside of the Operating Room. Despite present quality efforts, BIDMC continues to have a few wrong side/site procedures and many near misses. As we all know, one procedure error is too many and any of the near misses had the potential to cause harm. ***In response to this ongoing issue, the office of Healthcare Quality asked the Interventional Procedures Committee (IPC) to take part in a major immediate goal to standardize the approach to Time-Outs in the interventional areas.*** Within radiology, the section chiefs met with their representatives from the IPC to draft a script that would fit procedures carried out in our department. The draft had to meet the required elements of the time-out process which include the guidelines within Universal Protocol and additionally, medication, lab values and specimen issues. The time-out process is mandatory and must be carried out before the procedure begins and requires active participation on the part of all members of the professional team (MD/RN/Tech or MD/Tech). The new script (shown below) will be implemented on July 1, 2011.

– Misti Mullins, RN
Radiology Quality

TIME OUT - Immediately before procedure

	Get Ready	ID/confirm allergies	Correct Procedure	Mark site/side	Patient Medications	Labs/ Specimens	Last Check
RN/MD/TECH	"Ready to do a time out?"	Reads: "This is: patient's name, MRN, DOB." Lists allergies.	"What interventional procedure is the patient having done?"	"Does this interventional procedure involve a specific site or side?" *(If NO, skip to next question)* If yes, "Is the correct side/site identified or marked?"	1) "Has the patient been on any medication that should have been d/c-ed?" 2) "Are there any medications to be given prior to procedure?"	1) "Does this interventional procedure require any lab tests pending or needed?" 2) "Any specimens that must be collected?" *(If Yes, proceed. If No, skip question)*	"Is there anything else we need to discuss?"
MD	"Yes"	"Yes" or "No" (if ID is not visible, MD must verify with requisition, consent form or other stamped record)	MD states the name of the procedure	MD verbally confirms that correct site and side is identified or to be marked using imaging or states no marking is needed.	MD acknowledges that patients medications were reviewed and handled appropriately.	MD names any relevant lab tests and any specimens required.	MD responds as necessary
PATIENT	"Yes"	Confirms ❒ Name ❒ DOB ❒ Allergies	Confirms whenever possible	Confirms whenever possible	Confirms whenever possible	Confirms whenever possible	Confirms whenever possible
What Happens	❒ RN/MD/Tech has consent and requisition in hand ❒ All activities stop ❒ Everyone participates	❒ RN/MD/Tech reviews name, MRN & DOB on consent and requisition ❒ Team reviews allergies listed	❒ RN/MD/Tech confirms the procedure on the consent and requisition forms	❒ RN/MD/Tech confirms that laterality is correct on the consent and requisition forms. ❒ All visualize and confirm correct marking if appropriate ❒ All must agree to proceed (incl. patient, if possible)	❒ RN/MD/Tech verify any relevant medications.	❒ RN/MD/Tech verify any lab tests or specimens involved.	All respond as needed (may include special precautions)

Milestones - One April 7, BIDMC employees were honored for their years of service, including 75 from Radiology!

5 Years

Usama Abraham	Radiology CT
Sheryl Annino	Radiology US
K. Michelle Baar-Daley	Radiological Nursing
Jeffrey Bernard	Radiol-Community Network Svcs
Erika Byard	Radiol-BIH Admin Spec Fund
Avis Cohen	Radiology Support Services
Pamela Collier	Radiology US
Kristen Daunais	Radiology CT
Jennifer DiStefano	Radiology Dx
Michael Dresser	Radiology Dx
Kimberly Gianino	Radiology Dx
Jeffery Heinrich	Radiology Dx
Michael Hogan	Radiology Dx
Fritz Honore	Radiology Dx
Patricia Hughes	Radiology Support Services
Shakinah Jenkins	Radiology Administration
Erica Johnson	Radiology Support Services
Michael Jones	Radiology CT
Paulann Kay	Radiology MRI
Joseph Keegan	Radiology PACS
Ana Kerr	Radiology Support Services
Shezhang Lin	Radiology CT
Luis Lopes	Radiology CT
Patrick Louijame	Radiology Dx
Ling Lu	Radiology US
Mary Malolepszy	Radiological Nursing
Susan MacDonald	Radiology CT
Michelle Marquis	Radiology Dx
Linda Powers	Radiology CVIR
Phillip Purvis	Radiology PACS
Lindsay Roberts	Radiology US
Aideen Snell	Radiology Administration
Brian Sullivan	Radiology Dx
Lisa Thornhill	Radiology MRI
Cynthia Webster	Radiology Administration

10 Years

Raymond Airhart	Radiology MRI
David Alsop	Radiology MRI Research
Juanita Cook	Radiology US
Debra Fay	Radiology CT
Maria Fernandes Johnson	Radiology Support Services
Christy Hayford	Radiology MRI
Diane Lester	Radiology Dx
Elizabeth MacQuilken	Radiology CVIR
Constance Mulcahy	Radiology Mammo
Daniel Nicholson	Radiology Dx
Bessie Gray-Owens	Radiology Support Services
Jefferson Roach	Radiology CVIR
Jeanne Tracey	Radiology CT
Vincent Vitale	Radiology CT
Chun-Shan Yam	Radiol-Computing/Informatics

15 Years

Brian Bailey	Radiology US
Hope Lee	Radiology Dx
Janet O'Connor	Radiology MRI
Menaka Raj	Radiology MRI
Allen Reedy	Operations Administration
Mary Ryan	Radiological Nursing
Jacqueline Vernon	Radiology Support Services

Carl Nickerson, Dr. Sven Paulin and Dr. Kruskal at the BIDMC Long Service Awards Ceremony for the longest-serving employees held April 25th at Longwood Hall.

Dr. Kruskal, Laurie Pascal, Jim Brophy, Leanne Linscott, Tim Parritt, Bernie Kennedy, Betsy Grady, Donna Hallett, Allen Reedy were on hand to present Long Service pins to Radiology personnel. *Note that Allen Reedy was also honored as a 15 year veteran of BIDMC.*

20 Years

Joan Eichenfeldt	Radiology US
Marian Howes	Radiology Supervisor, 25 Boylston
Daryl Kilby	Radiology Support Services
Thomas Konieczka	Radiology Image Archives
Fotini Kourtelidis	Radiology MRI Research
Maryann Michalik	Radiology Image Archives
Lori Nugent	Radiology MRI
Bridget O'Bryan-Alberts	Radiology Nursing
Claire Odom	Radiology Administration

25 Years

Ellen Dorrington	Radiology Administration
Carl Nickerson	HMFP Radiology
Karen O'Neil-Kalil	Radiology CT

30 Years

Peter Cousins	Radiology Support Services

35 Years

Jeanne Eason	Radiology Dx
Colin McArdle MD	HMFP Radiology (US)
Joseph Messina	Radiology Dx
Kim Provencher	Radiology CT

40 Years

Sven Paulin MD, PhD	HMFP Radiology (Thoracic Imaging)

Where in the world is. . . .

Jeremy Weiss, DO
IR Fellow 2000 - 2001
Interventional Radiologist
Private Practice, Portland, Oregon

Jeremy today, still wearing his trademark diamond shaped lenses

He's not Doctor Jekyll but could be ... Mr. Fried

Oregonian, The (Portland, OR) - March 28, 2006
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Author: *STEVE WOODWARD; The Oregonian*

Photo by Denyce Weiler of Something Blue Photography

Before you jump to conclusions, you should know that Dr. Jeremy Weiss is a serious physician. As his biography states, Weiss, 36, is medical director of a cutting-edge clinic and a staff radiologist at Providence Portland Medical Center. He is one of the youngest doctors ever to be named a reviewer for the Journal of Vascular and Interventional Radiology. He has performed procedures ranging from CT-guided radio-frequency ablation to endovascular repair of aneurysms.

None of which seems to explain why he's now shoving a 3-foot-long yellow balloon down his throat. Weiss is standing in his living room in Northwest Portland, head thrown back, eyes toward the ceiling, feet planted firmly apart for balance.

Down, down, down goes the balloon --the long, narrow kind that clowns use to twist into poodle shapes and silly hats for children. But this balloon is straight and rigid, like a sword. Weiss gags from time to time, tugging at the skin of his throat, just below the Adam's apple, but he doesn't panic, or even display mild concern.

Steadily, the balloon slides bellyward, like an anaconda swallowing its prey whole. Two feet remain. One foot. Inches. Then the last yellow curve of the balloon disappears as Weiss closes his mouth over it. Ta-da!

Now he's eager to move on to walking barefoot on broken glass. But before he does, you should know that Weiss is a highly trained health professional. He received his Doctor of Osteopathy degree at Nova Southeastern University in Florida. He was chief resident in diagnostic radiology through a Columbia University program in New York. He completed a fellowship in vascular and interventional radiology through a Harvard program in Boston.

But most impressive of all, he's also a recent graduate of the Coney Island Circus Sideshow School in Brooklyn, N.Y.

That's sideshow, as in sword-swallowing, snake-charming, fire-eating, lying on a bed of nails . . . and walking barefoot on broken glass.

The school bills itself as "the only place in the world where students can learn traditional sideshow acts from practicing masters of the arts."

Sideshow feats may seem tame to a doctor whose radiologist father let him assist in medical procedures at age 9 and let him insert his first stent at age 16.

But before you dismiss Weiss as a one-dimensional medical prodigy, you should also know that there was more to the young Weiss than meets the eye --literally.

The boy was a magician. He started with a magic-trick kit with a plastic top hat and sponge rabbits. He grew up reading magic books, haunting magic shops, practicing card and coin tricks on friends. He advanced to grand stage tricks, escapes, seances and mentalism.

In the Coney Island school, Weiss saw his chance to learn something his father never taught him: how to eat fire.

"The cool thing about the sideshow," Weiss says, "is that you really are walking on broken glass and swallowing swords."

So last fall, he signed up for a one-week intensive course. "Professor" Todd Robbins, who calls himself the "Postmodern Master of the Sideshow," taught Weiss the secrets of walking barefoot up a ladder of razor-sharp swords, sticking his hand in an animal trap and letting electrical currents flow through his body to light up a light bulb.

Weiss came home to his young family: wife Anne, an environmental planner who once worked for the United Nations, and their 2-year-old son. A daughter was born last month.

Weiss demonstrated his new skills at a private holiday party in December.

"My wife doesn't care for magic, actually," Weiss says. But "she's super supportive."

Although he fears getting labeled as The Circus Freak Doc, Weiss would like to perform publicly from time to time. Before he went to the sideshow school, Weiss made one public appearance, swallowing razor blades at a Salvador Molly's Great Balls of Fire habanero-cheese-fritter-eating benefit. Which brings us back to the broken glass, which he has dumped out of a bucket onto a cloth spread over his kitchen floor. Removing shoes and socks, he ventures out onto the glass. Then he begins jumping up and down on it, leaving not so much as a scratch.

The broken-glass finale: He plucks up a jagged, silver-dollar-sized chunk of glass, pops it into his mouth and eats it, crunching noisily.

Weiss' hobby sometimes makes his physician partners cringe in sheer terror. To wit:

"Is this an ordinary can?" Weiss asks theatrically, as he lifts a can of S&W black beans from a kitchen shelf and invites a visitor to inspect it. As cans of beans go, it is indeed ordinary.

Weiss splays his fingers on a cutting board on the dining room table --the very fingers that earn him a living doing minimally invasive surgery. He raises the can above his head, rocks back and forth in concentration and slams the can down on his fingers with all his might. The action leaves the can deeply dented.

And his fingers? He smiles and wiggles them.

He'll have no problem doing the next uterine fibroid embolization.

Putting aside the dented can of beans, Weiss decides to follow his broken-glass appetizer with fire for dessert. Lighting and relighting a small torch on the back deck, he inserts the flame into his mouth, sometimes snuffing it out, sometimes bringing it out in full combustion. He picks up the flame with his fingers and transfers it to a second torch. He sets his tongue on fire. He turns his mouth into a human blowtorch.

Weiss' fascination with sideshow acts, in a way, is no different than his fascination for medicine. He says he likes to take the tough cases, when everyone thinks nothing more can be done.

"I like doing things," Weiss says, "that people think are impossible."

18 guage Hawkins needle though the neck - The Shock Doc's version of "The Human Pincushion." Photo by Denyce Weiler of Something Blue Photography

Special thanks to Rob Sheiman for contacting Dr. Weiss and steering us to the ShockDoc Show website ***http://theshockdocshow.com/Oregonian/***

2011 Publications from our Faculty Members [New citations in Blue]. *We do a monthly PubMed search for new BIDMC publications and may miss those in which your affiliation is not noted. If we miss your paper, please send the reference to dwolfe@bidmc.harvard.edu to be included in next month's issue. Please note that publications do not always appear in Pubmed in the same month they are acutally published.*

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