

Radical Views... from the Department of Radiology

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Beth Israel Deaconess
Medical Center

A teaching hospital of
Harvard Medical School



FROM THE CHIEF
Jonathan B. Kruskal, MD PhD

➤ **Barry Sacks** announced his intention to reduce his hours and step down as our IR Section Chief in July this year. What an incredible job Barry has done building the section up to be the dominant clinical, research and educational IR team in town. Barry has single-handedly turned the entire IR group into one large triple-threat and has done a yeoman's job that we are all so proud of and grateful for! I am also indebted to Barry for the immense amount of time and effort he has devoted to the Fellowship Program. Rest assured that Barry will not be leaving us; he will continue to see and treat thyroid patients, so we will all continue to benefit from his expertise and presence.

It gives me great pleasure to announce that Barry will be passing the leadership of the Vascular and Interventional Radiology Section to **Muneeb Ahmed** in July 2014. Over the next 5 months, Muneeb will work closely with Barry to ensure a smooth transition.

This is also a timely opportunity for us to rethink how we will provide the highest quality Interventional Radiology Services both at BIDMC and across our growing affiliate network. As our multi-modality interventional services continue to grow in volume and in complexity - and with the shift to greater accountability in healthcare - we will need to place more focus on efficiency, standardization, outcomes and patient satisfaction. To best position ourselves to succeed in this environment, we must align all of our interventional groups across all modalities to optimize patient access, quality of care and service coverage. To start this process we will be deploying a new interventional dashboard soon that will integrate access and scheduling across our many interventional services. We must also take advantage of the excellence of our faculty and the case mix to further develop our interventional education and research programs.

With these specific goals in mind, it gives me great pleasure to announce that I will also be appointing **Muneeb Ahmed as Director of Interventional Services** in our department. This new position has been established to reflect the need to better align and integrate our many interventional services now, and to optimize patient care and customer service. Please join me in congratulating Muneeb on these well-deserved appointments.

➤ With great pleasure I am happy to announce that **Tejas Mehta**, Section Chief for Breast Imaging, has been appointed **Co-Director of the BreastCare Center** at BIDMC.

A graduate of the radiology residency program at BIDMC and of Harvard School of Public Health, Tejas has been a member of our breast imaging section since 1998, becoming section chief in 2012. With her strong focus on clinical operations, quality



improvement, service excellence and patient safety, Tejas will be working with Center Co-Director Michael Wertheimer, MD, to bring the vision of an integrated BreastCare Center at BIDMC to fruition. As Tejas outlined in Radical Views Oct 2013, the new center will have 2 exam rooms in Breast Imaging (TCC 4th floor) so that patients with dual imaging and breast care appointments will no longer have to travel between floors. Patient flow will be smoother and more efficient; patients will have a separate check-in for breast; all mammo units will be clustered to improve efficiency; all technologists will be together so that everyone can assist each other; there will be one reading room so the radiologists can also be more efficient; we will have the much needed extra ultrasound unit; technologists will also have their own lounge; and all the breast imagers' offices will be clustered to allow for ease for collaboration. Please join me in congratulating Tejas on this well-deserved appointment.

- Jonny

2012 RSNA GRANTS AND AWARDS



Today's Research, Tomorrow's Practice



Former resident and research fellow, Muneeb Ahmed returned to BIDMC to join our IR staff following fellowship training in interventional radiology at Johns Hopkins in 2009. Since then, he has continued his research efforts as associate director of the Laboratory for Minimally Invasive Tumor Therapies and in 2012, he was awarded the Silver Anniversary Campaign Pacesetters Research Seed Grant from RSNA for "Elucidating the Extent and Causes of RF Ablation-Induced Cell Growth". (His photo was also chosen for the cover of the 2012 Research Awards Booklet!) In 2013, he became Director of the Vascular and Interventional Radiology Fellowship Program and now, as upcoming section chief of interventional radiology, we can only look forward to continuing academic achievements.

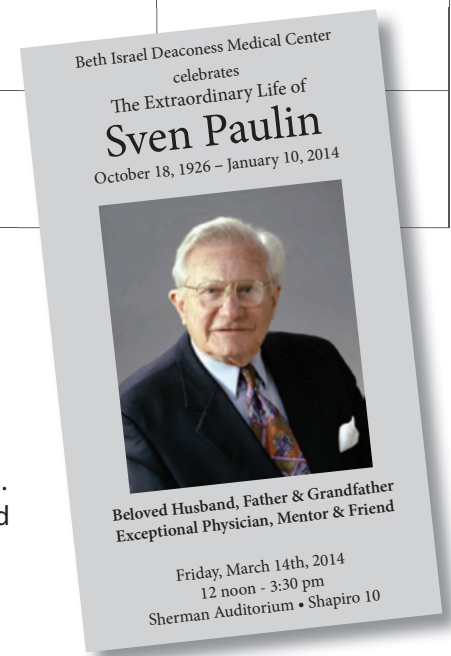
Radiology Calendar MARCH 2014

Mon	Tues	Wed	Thurs	Fri
Weekly Mon Section Meetings: 3:00-4:00 ED section meeting (monthly) [ED annex, WCC]		Weekly Wed Section Meetings: 11:00-12:00 MSK clinical conf 12:00-1:00 CardioThoracic, GI/GU Oncology 3:00-4:00 Mammo [TCC-484]	Weekly Thurs Section Meetings: 12:00 - 1:30 Abd [WCC-354] 12:00-1:00 MSK	
3 7:30 - 8:15 Lung cancer screening (Phillip Boiselle) 8:15 - 9:00 Lung cancer staging (Phillip Boiselle)	4 7:30 - 8:15 Pleural disease (Janneth Romero) 8:15 - 9:00 Chest (Pierluigi Ciet)	5 7:30 - 9:00 Physics (Matthew Palmer) [MRI - Image characteristics]	6 7:30 - 8:15 Spine infection and inflammation (David Hackney) 8:15 - 9:00 Brain inflammation (Gul Moonis) 2:00-3:00 West MedRads - Senior Resident	7 12:00-1:00 Chiefs' Rounds
10 7:30 - 9:00 Breast - Interesting Cases (Francesca Proulx) 12:00-1:00 MRI meeting [Ansin-2]	11 7:30 - 9:00 Benign breast disease (Nancy Littlehale) 10:30-11:30 NMMI meeting [GZ-103]	12 7:30 - 9:00 BIRADS Lexicon and MQSA + Cases (Julie Armada) 7:15 - 8:00 US meeting (WCC-304A Gallery)	13 7:30 - 9:00 Breast MRI and biopsies (Vandana Dialani)	14 12:00-3:30 (No Grand Rounds) Sven Paulin Memorial & Reception [Sherman Aud/TCC-10]
17 7:30 - 9:00 Career Week (TBD) [Academic Practice]	18 7:30 - 9:00 Career Week (TBD) [Private Practice] 8:00-9:00 IR Meeting [West Recovery]	19 7:30 - 9:00 Career Week (TBD)	20 7:30 - 9:00 Physics (Matthew Palmer) [MRI - Pulse Sequences] 2:00-3:00 West MedRads - Senior Resident	21 12:00-1:00 Digital Breast Tomosynthesis: A New Era in Breast Cancer Screening and Diagnosis (Steven P. Poplack)
24 7:30 - 8:15 Congenital pulmonary disease (Trotman-Dickenson) 8:15 - 9:00 Chest - case presentation (Trotman-Dickenson)	25 7:30 - 8:15 Fungal and Mycobacterial infection (Janneth Romero) 8:15 - 9:00 Chest - case conference (Ronald Eisenberg) 10:30-11:30 NMMI meeting [GZ-103]	26 7:30 - 8:15 Temporal Bone: Anatomy and Pathology (Gul Moonis) 8:15 - 9:00 Temporal Bone Cases (Gul Moonis)	27 7:30 - 8:15 Pediatric Brain (TBD) 8:15 - 9:00 Pediatric Spine (TBD)	28 12:00 - 1:00 QA Grand Rounds -Bettina Siewert
31 7:30 - 9:00 Breast (TBD)				

On Friday March 14th, we will have the chance to celebrate the extraordinary life of Sven Paulin and his 40+ years of service at Beth Israel Hospital/Beth Israel Deaconess Medical Center in a Memorial presentation in the Sherman Auditorium (12 noon-1 pm). Please also welcome among the speakers Herbert L. Abrams, MD, the Philip H. Cook Professor and BIH Chairman of Radiology, 1967-1985. This will be followed by a reception in the Shapiro-10 conference rooms (1-3:30 pm). We are proud to welcome Dr. Paulin's family, wife Birgit and children Susanne, Magnus, Helena and Viveca, and grandchildren Magnus, Mattias and Axel. Thank you all for coming to help us honor the passing of our beloved colleague, mentor and friend.

*Consult the webpage for the most up-to-date schedule:

<https://apps.bidmc.org/departments/radiology/residency/conferences/displayMonth.asp>



DEPARTMENTAL Grand Rounds



Friday, March 21, 2014
12 noon - 1:00 PM • Sherman Auditorium

Digital Breast Tomosynthesis: A New Era in Breast Cancer Screening and Diagnosis.

Steven P. Poplack, MD - Associate Professor of Diagnostic Radiology & Associate Professor of Obstetrics and Gynecology, Dartmouth Medical School • Director, Breast Imaging Center, Dartmouth-Hitchcock Medical Center

Dr. Poplack graduated from the Boston University School of Medicine and completed internship training in medicine and surgery at Carney Hospital in Boston; and diagnostic radiology residency training at Yale-New Haven Hospital which included a fellowship in body imaging/breast imaging in his fourth year. He joined the staff of Dartmouth Medical School as an Assistant Professor of Diagnostic Radiology in July 1993 and as an Assistant professor in Obstetrics and Gynecology in November 1994. In addition to serving as Director of the Breast Imaging Center at Dartmouth-Hitchcock Medical Center, he is also Co-Chair of the Breast Imaging Section in Radiology; investigator at the Norris Cotton Cancer Center and Associate Investigator in the Cancer Control Program. He is just finishing funded studies on Optical Imaging Fused with Tomosynthesis for Improved Breast Cancer Detection (NIH R01) and Risk-Based Breast Cancer Screening in Community Settings. Currently, he is involved in a study on Advancing Systems Approaches to Personal and Population Breast Cancer Screening.

KUDOS - Each month, we share the positive feedback we receive about staff members and ask you to join us in congratulating them; as always, we are especially proud to acknowledge an unprecedented constellation of staff for providing outstanding care and service!

Breast Imaging

- Several grateful patients have expressed their gratitude for **Judy Adam's** care and professionalism during their visit. Co-workers have also spoken highly of your willingness to step up and offer assistance to them, demonstrating a TEAM approach to the job at hand.

Dx

- CT recommended **Christopher Burgos** for outstanding assistance.
- Thanks to **Maureen Burke, Joanne Carmichael, Jennifer DiStefano, Lauren Finn, Daniel Geradi, Mary Elizabeth Monroy, Michelle Short, Linda Theim, Ana Cordero, and Daniel Bradley** staying in Hotel BIDMC to ensure AM coverage during our many snowy days and nights.
- Thank you to **Ana Cordero** for coordinating Tech Month activities.
- The CT night staff recognized that **Dave Delpêche** really goes out of his way to make sure the patients get warm blankets and are comfortable. He also stocks the linen in radiology and CT rooms and helps with trash removal and dirty laundry. He helps move patients as well as transporting our morning unit patients back so the units don't have to wait for house transport.

IR/INR

- **Hal Costa** exhibits the true spirit of teamwork by helping another department in need of staffing and going above and beyond all expectations.

Welcome

On January 8th, 2014, **Dr. Mariaelena Occhipinti** from the Department of Radiology, Catholic University of Rome, Italy, will join our Cardiothoracic Imaging Section as a Research Fellow.

Mariaelena will stay with us for 6 months and I am sure she will successfully contribute to the research enterprise of our section!

Please extend our warm welcome to Mariaelena!

- Alex Bankier, Chief, Cardiothoracic Imaging



In case you missed an issue!

All back issues of Radical Views are available on the portal under "News and Events": <https://apps.bidmc.org/departments/radiology/news/news.asp> and **we also have an outside link on the alumni site:** <http://radnet.bidmc.harvard.edu/education/newsletters.asp>



Farewell Nuc Med Tech Martha Wilson: 28 year veteran

After working 28 years at BIDMC in the Nuclear Medicine department, seeing a lot of changes and meeting a lot of people over the years Martha Wilson retired!

On Friday, February 28th, we sent her off with well wishes and kind words (... or other words) as well as light refreshments and lots of coffee thanks to the efforts of Nuc Med Senior Tech Ritch Mitchell. Martha was presented with a scrap book to remember her years at BIDMC and she looks forward to a future filled with flower arranging and dog walking!



Special thanks to **Meagan Harrington** as it was thanks to her "scrapbooking skills" and hard work that we were able to present Martha with a wonderful scrap book of her years here at BIDMC. Meagan and the rest of the techs were unable to make it to the party because they were hard at work.



L to R: Tanya Williams, Jeff English, Michael Smalls, Lauren Shanbrun, Erin Beloin, Dace Jansons, Donna Hallett, Blanch Murphy, Larry Barbaras, Rich Mitchell, Terese Mollins; Front row: Maria Pavon, Martha Wilson, and Michael Fisher.

Radiology in the Community

Patient's Wife Reflects on Medevac Experience

Published: 2/25/2014 9:30:00 AM. *Moments That Matter* is a monthly series featuring letters written to BIDMC staff by other staff, a patient or a patient's family. Published on the BIDMC Portal, this letter was printed with permission of the patient.

Dear Dr. Tabb,

My husband recently returned home from a ten day stay at the MICU 7 unit and Farr 5 floor of Beth Israel Deaconess Medical Center. He had been medevaced from BID-Plymouth (formerly Jordan Hospital) after suffering a massive hemorrhage of the stomach.

We were completely surprised by this event, as he had not had any previous symptoms. During his stay in both hospitals, he received close to 20 units of blood plus several units of platelets. He could have died. I'm writing because we feel compelled to tell you of the care and kindness we both received from personnel. They were professional, kind and supportive beyond measure.

Neither of us had ever been in BIDMC before, and did not know what to expect, but the staff members in MICU 7 and again on the fifth floor of Farr were fabulous. They not only demonstrated their competence and expertise through their care of Bill, but they showed true compassion in their treatment of me.

We are extremely grateful to all the people who came into our lives during that time, especially to Robert Gianotti, MD, Gastroenterology; **Salomao Faintuch, MD**, Interventional Radiology; **Ammar Sarwar, MD**, Interventional Radiology; the unit doctors, staff, and nurses Priscilla Gardner, Ida Samuel, Stephanie Duddy and Kevin Phelan on MICU 7, who went above and beyond what we have ever experienced in a hospital before; the doctors and nurses on Farr 5 who gave wonderful care and were so helpful at expediting our release; and the maintenance woman who followed me to my sleep room to return a gold earring she had seen me drop in the hall. To them all, we owe a debt of gratitude. They treated us like family, and we will never forget them.

We would also like to add our appreciation to the staff members at BID-Plymouth who received Bill in emergency, and treated him in the ICU unit. Their prompt action and wonderful care played a large role in stabilizing his condition and readying him for transfer to Boston. Without them, we're not sure he would have survived.

We wanted you to know that you have a staff to be proud of, and we sincerely hope that you do some kind of personality and aptitude testing on those people, and match every new hire's test results to theirs, because they are the best!

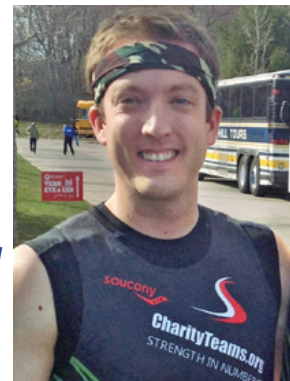
With appreciation and gratitude to everyone at Beth Israel Deaconess.

Sincerely,
Bill and Pat Vacca

Boston Marathon Update

by Matt McMahon

Thanks so much to Nuc Med Tech Matt McMahon for sharing his experience of the Boston Marathon both last year and now. Note that as of this date, Radiology personnel Nuc Med Faculty Matt Palmer and Dx Tech Nick Bucci will also be running this year.



I am definitely running again this year!! I am running with my same CharityTeams.org group for which I volunteer my time to help runners train and fundraise (and I also take care of most of our social and event planning). I am personally running for The Martin W. Richard Charitable Foundation (MR8), one of the 20 foundations/charities that we work with. This foundation was formed by Martin's family; he was the 8-year-old boy who tragically lost his life in the events of last year. The Foundation honors Martin's message of **"No more hurting people - peace"** by investing in education, athletics and community foundation.

To date, the 2014 MR8 Marathon team has raised nearly \$345,000. We have formed a community fundraising page within the MR8 foundation for the CharityTeams.org employees, and our family and friends. If anyone would be interested in donating \$26.20 to our cause, our page can be found at <http://www.firstgiving.com/fundraiser/charityteams/team-mr8-boston-marathon-2014>. Any donation is greatly appreciated!!

Of course, we are currently in the midst of training, and are actually headed out for our team-themed 17-mile run on Saturday. We dress as various Super Heroes and run from Natick to the downtown Boston Finish Line in preparation for April 21st. We have another team-themed run at the end of March where we will run 21 miles from Hopkinton to the top of Heartbreak Hill at BC.

I am very much looking forward to Marathon Monday but also have some very mixed emotions about it as well. It was tough to be downtown for all of the events last year, being so close and having my brother in the stands as everything unfolded. I am sure that Marathon Monday will be an extremely emotional day on many levels, but I am extremely excited to be able to participate again this year. It will be a very memorable day in the City and the Boston Marathon's history and I feel very lucky to be able to be a part of it.

Thanks,
Matt



Radiology in the Larger Community:

Rola Shaheen

Dr. Rola Shaheen who is on sabbatical and currently Acting Chair of Radiology & Chief of Women's Imaging at Mafraq Hospital, United Arab Emirates is wonderful to keep us abreast of her work in the Middle East. Most recently, she has popped up on Aunt Minnie and Arab Health!

[The following 2 articles have been reformatted for publication in Radical Views]



AuntMinnie.com

Arab Health: Multimodality imaging key to managing breast cancer

By [Eric Barnes](#), [AuntMinnie.com](#) staff writer

January 27, 2014 -- DUBAI - Finding a suspicious breast lesion is just the start of the path toward optimal management and treatment of breast cancer, and multiple imaging modalities should be used, according to a talk by Dr. Rola Shaheen on the opening day of the Total Radiology sessions at Arab Health 2014.

Mammography, ultrasound, and MRI each has its role in diagnosing suspicious lesions. But establishing the radiologic-pathologic correlation is just as important to ensure concordance -- and even that's not necessarily the end of the line for radiologists looking for optimal care, said Shaheen, who is acting chair of radiology and chief of women's imaging at Mafraq Hospital in Abu Dhabi, United Arab Emirates.

Among the modalities, MRI has carved out a large and growing role in breast cancer management, but even this imaging superstar should be considered an adjunctive -- rather than primary -- modality for achieving optimal care, she said.

"It's all about optimizing breast care management and how to work as a team to save the patient," Shaheen said.

Radiologists must lead the way

Planning a diagnostic and treatment approach for breast cancer without comprehensive attention to each of the steps won't do justice to patients or their care teams, which count on the radiologist to lead the way.



Dr. Rola Shaheen from Mafraq Hospital.

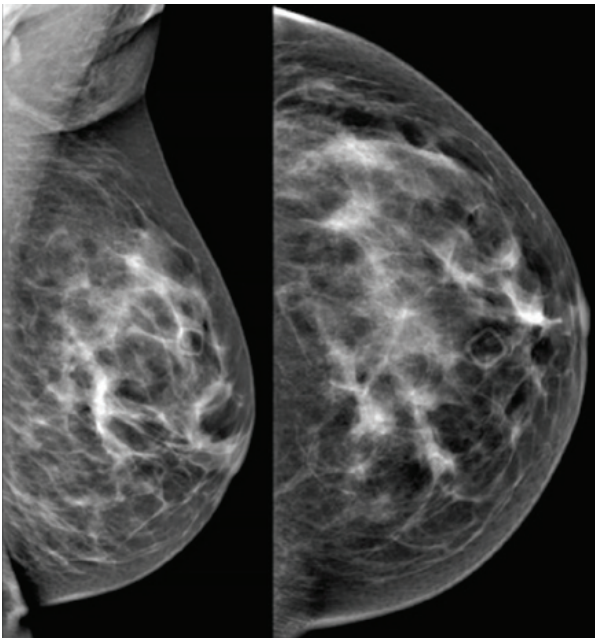
"We as the breast imagers are the major players in the multidisciplinary team in breast cancer management, or breast cancer in general, especially if the patient needs some imaging," Shaheen said. "We are consultants to clinicians to advise on what's the next best step, and we are experts on multimodality imaging and interventions including mammography, ultrasound elastography, MRI, core biopsy for fine-needle aspiration, and needle localization."

Beginning with the BI-RADS classification, it is crucial to standardize lesion classification, whether between mammographers and pathologists, technologists, or surgeons, she said.

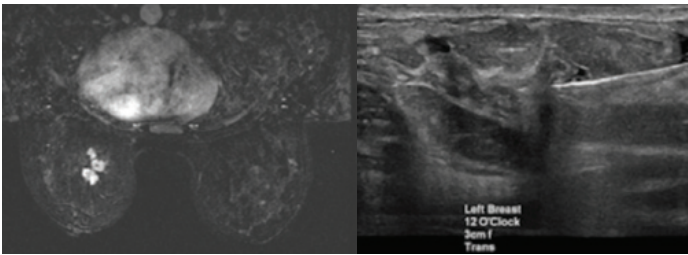
With BI-RADS 3 lesions, for example, the finding is probably benign, but follow-up is called for and the radiologist needs to specify the short-term follow-up period. For BI-RADS 4 -- i.e., suspicious lesions -- the breast imager should subcategorize the finding into low, medium, or greater-than-medium suspicion for malignancy. By the

time the breast imaging specialist gets to BI-RADS 6, a probable malignancy, the rad-path correlation should be straightforward.

Breast cancer findings include masses, calcifications, developing asymmetry, and skin thickening, which is often imperceptible, Shaheen said. For whatever reason the patient is called back -- a finding on mammography, a clinical finding, or a patient discovering a symptom -- the diagnostic path generally begins with multimodality imaging, followed by image-guided biopsy. Then comes the critical rad-path correlation and, ultimately, assessment of cancer pathology and hormonal status before deciding on treatment, which greatly depends on the individual case.



Left mediolateral oblique (left image) and left cranial-caudal (right image) unilateral diagnostic mammogram for a 42-year-old woman presenting with new palpable lump in the left upper central breast with no suspicious finding on mammogram. All images courtesy of Dr. Rola Shaheen, originally appearing in the 2014 show Issue of Arab Health magazine.



Targeted ultrasound for the palpable lump in the left breast showed vague hypoechoic area at 12 o'clock which was core biopsied under ultrasound guidance (left). Pathology of left breast ultrasound core biopsy was benign, however at multidisciplinary breast care conference, pathology result was found to be discordant with imaging findings on ultrasound, and further evaluation with breast MRI (right) showed an irregular enhancing left breast mass in the upper, central to inner breast which was confirmed to be invasive ductal carcinoma on excisional biopsy.

“Diagnosis doesn’t stop with the biopsy; it’s even more important to correlate the biopsy results with the imaging finding,” she said.

Perhaps there are suspicious microcalcifications in a case of recurrent breast cancer. Should the patient undergo bilateral fine-needle aspiration or ultrasound-guided biopsy? Has lymph-node status been checked? Radiologists should measure not just the size of the lymph nodes but the thickness as well.

“For partially treated breast cancer that deviates from standard management, always review and/or repeat imaging and pathology exams before further management,” Shaheen said.

The point is to be thorough -- and then pick up the phone to speak with the surgeon about your findings, she said.

The radiologic-pathologic correlation should be referenced by an addendum or documentation. With concordant results, give an indication of the next step. For discordant results, discuss the case with the pathologist in a multidisciplinary conference. And document the final consensus, Shaheen said.

Breast MRI

According to the 2013 American College of Radiology (ACR) guidelines, breast MRI should be performed for screening high-risk patients, as well as those with a new breast malignancy, following a 2007 report in the *New England Journal of Medicine* on MRI’s ability to find cancer in the contralateral breast. It should also be used to screen patients with breast augmentation, which presents difficulties such as mammographically occult regions, or cancer tracking the contour of the implant, Shaheen said.

For confirmed cancers, MRI can be used to assess the extent of disease such as ductal carcinoma in situ, for additional evaluation of imaging or clinical findings, and for problem-solving.

“If you have access to breast MRI, do your patient a favor and try to get them a preoperative MRI if that does not delay their management,” she said.

On the other hand, MRI is not suitable for screening the general population. It may turn up false positives or findings that are not clinically significant.

MRI may change patient management, but it is not a primary screening modality, Shaheen said.

“Breast MRI is not a substitute whatsoever for other modalities or biopsy,” she said.

To conclude, preoperative multimodality imaging is essential for optimal patient management, radiologic-pathologic correlation following breast biopsy is essential to ensure concordance, and breast MRI is an important tool for a growing number of cases and may change patient management, according to Shaheen.

“Expertise, safety, and quality are important considerations for a successful breast MRI program,” she said.

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A multidisciplinary breast care centre is the way to go



By: *Rola Shaheen¹ and Michael Wertheimer²*

There is relative paucity of multidisciplinary breast care centres in the Middle East that calls for an urgent need to direct health planning efforts to adapt this effective approach in breast care management. Breast cancer is the most common cancer in females and the second cause of death in females following cardiovascular diseases. This article aims to explain the multidisciplinary breast care approach and to highlight the benefits of breast care centres, challenges, lessons learned, and, above all it clarifies the reasoning behind 'breast care centres is the way to go'.

INTRODUCTION

Contemporary breast cancer care is based on an infrastructure of multidisciplinary collaboration. Diagnosis and treatment is best accomplished with interdisciplinary collaboration. In the United States, 70% of new breast cancers in screened populations, for example, are discovered by mammography and biopsied by image-based techniques. Majority of these tumours are Stage 0 or I and can achieve 85-90% long-term cure rates. Most of these patients have options for local therapy including breast conservation (lumpectomy) with, or without, radiation, or mastectomy with, or without, reconstruction. Oncoplastic techniques allow breast preservation with excellent aesthetic results in many women who might otherwise require a mastectomy. Collaboration and review of imaging studies by the operating surgeon and the breast imager is critical to accurate and effective breast cancer surgery.

Virtually all patients with breast cancer receive some form of systemic therapy. Integrating and proper sequencing of treatment modalities is critical. These numerous options are often bewildering for patients and families, and even for providers, when faced with a new diagnosis. Seamless integration of medical disciplines and information is critical for accurate patient evaluation and decision-making. Primary review of imaging studies, pathology slides and the clinical presentation is critical for providers such as the medical, surgical and radiation oncologists. Psychosocial evaluation and patient navigation are critical to successful outcomes. Nuance in these interpretations is the rule rather than the exception.

Systems support, information technology and especially the creation of a logistical platform to facilitate this

interdisciplinary collaboration is critical for the provision of modern, contemporary breast cancer care. Weekly multidisciplinary tumour boards, multidisciplinary clinics, and radiology/pathology correlation conferences all bring together critical experts from all relevant disciplines to make informed decisions, and to allow for appropriate recommendations and choices for the patient. These types of meetings serve as the nexus of the critical individuals from the necessary disciplines to work together as a team, share information and expertise, and to review relevant research and current literature from their disparate disciplines. These meetings serve as the nexus for creation of standardised approaches across a system, generate new research agendas, and present patients with unified, consistent recommendations that have been thoughtfully constructed. Patients greatly appreciate this approach, expect this approach and greatly appreciate the economy of 'one-stop shopping'. This has now become the gold standard worldwide.

THE MULTIDISCIPLINARY BREAST CARE CENTRE

Comprehensive and collaborative breast care approach

An integrated comprehensive process of patient-centred quality care provided by a team of collaborative experts working in different relevant breast subspecialties communicating effectively and efficiently to ensure best possible outcome of breast diseases, predominantly breast cancer. This process is ideally offered to patients 'under one roof' in a 'one-stop shop' breast care centre. The virtual breast care centre concept can exist when some of the breast subspecialties are not available in one campus. Health

experts can work at a virtual unit based on open access and effective communication. The breast care centre is a great resource for patients and their families for risk analysis and prevention. The wide spectrum of services would include breast cancer screening and early detection, diagnosis, staging, pre-treatment planning, therapy, rehabilitation and continuing care. A dynamic breast care centre is a response to the extensive women's health needs and to improve outcomes of breast cancer through sensitive engagement of the patient and family in the management. Women are key decision-makers for family health.

The process and benefits

The purpose of a multidisciplinary breast care process is to provide breast health services, such as imaging, clinical evaluation, diagnosis and treatment through a coordinated team of breast healthcare providers in a compassionate patient-centred environment. Within such a collaborative set-up, patients receive evidence-based clinical care with an improved treatment plan across specialities that can certainly reduce service duplication and enhance timely management. The services identify the patients' emotional needs and alleviate the impact on their families. Moreover, it is equally beneficial for the healthcare givers as it offers a great medical educational platform through the periodic breast care meetings; therefore, many of the breast care centres hold regular conferences of accredited continuous medical education credits offered to medical staff attending and participating with the meeting. Moreover, such a collaborative approach opens doors for research and clinical trials that would have been difficult to coordinate outside such forums. Clinical audits for the practice can be readily doable with transparency and can eventually feed into the cancer registry. All of the above can improve community profile.

Teamwork and services

The major core players within the breast care centre are the physicians, nurses and data managers. The primary physicians include breast surgeons, radiologists, pathologists, oncologists, and radiation oncologists. The secondary core of medical professionals includes the onco-plastic surgeon, the psychiatrist/psychologist, the genetic counsellor, the social worker, the pharmacist, the dietitian and the palliative caregiver. Patients are referred to the breast care centre for a wide spectrum of different clinical presentations, however, all patients should receive a standard of quality care through a robust process of referral and management, coordinated and monitored by experienced case coordinators. A new breast lump (see figures 1-4) is handled cautiously as an emergency in an outpatient setting where patients get to be assessed by a breast surgeon, and then they are referred for same-day imaging for characterisation and possible interventional breast procedures. Pathologists play a major role in radiological/pathological correlation to determine concordance. Discordant cases should be discussed at a multidisciplinary conference where clinical, radiological and pathological findings are discussed, and where consensus on management needs is determined. A patient may need a re-biopsy, an excisional

biopsy, or just a follow-up. The care process gets more complex when breast cancer is diagnosed or referred. A patient gets a comprehensive assessment by the breast surgeon and the medical oncologist who review radiological imaging; they then consult with breast imagers and other general radiologists to help provide accurate staging, which largely impacts the pre-operative treatment plan. A nurse navigator or a case coordinator has a crucial role in facilitating the bookings and the scheduling of a patient's medical appointments, and in allocating supportive services for the patient and her family.

The breast care conference

The regular periodic multidisciplinary breast care conference is an important venue to consolidate individual patient plans of care and to follow up in a collaborative and professional environment. The conference can be held at the hospital or in the outpatient setting. Patients and/or family members, members of industry, and members of the public should not attend this meeting in order to protect patients' confidentiality and to prevent biased opinions. On the other hand, the following should attend the conference: the Chair of the conference, the conference coordinator, the members of the breast care centres and the trainees, if being held at an academic centre. The chair of the conference can be a physician or a non-physician. The breast conference Chair would be responsible for running the conference, ensuring confidentiality by permitting only appropriate attendees, documenting recommendations, and following up on implementation. The conference coordinator's (who is usually a non-physician) role involves preparing the patient lists, booking a meeting venue and setting up. It is essential and time-conserving to coordinate the IT support services as this will ensure smooth running of the case presentations through computer generated projection of the radiological and pathological information, and of patients' data. Video conference tools are necessary in the case of a virtual breast care centre. The format of the breast conference can vary amongst institutions depending on volume and on case varieties. Frequency is mostly volume dependent; however, a minimum of a one-hour weekly, or bi-weekly, meeting is necessary to provide a timely consensus for patients' treatment plans. Cases discussed at such meetings are usually all new breast cancers, recurrent and metastatic breast cancers, and challenging cases. In case of any treatment or management issues or difficulties, final disposition is eventually left to the physician's discretion. Recording of attendance of the conference is essential for claiming continuous medical education credits, or it is simply an institution's requirement.

CHALLENGES AND OPPORTUNITIES

There are relatively significant numbers of women presenting in late stages of breast cancer in the Middle East, even in cities where accessible resources are available. This raises an awareness concern that has been addressed in many studies. Rigorous efforts in all directions and at all levels are currently and rightfully focusing on raising breast cancer awareness in the Middle East in an effort to enhance early detection

of the disease through screening services and diagnostic tools. Early detection of breast cancer coupled with effective, timely treatment can lead to a cure. It is essential to raise public awareness and encourage women to overcome the cultural barriers for breast cancer screening, however, it is equally important for the health system to be able to accommodate in parallel an effective breast cancer management through a multidisciplinary quality care that leaves no woman behind once she is diagnosed with breast cancer. Alternative pathways with scattered and fragmented breast care may result in unsatisfactory outcomes including patients who are lost due to lack of follow-up. Limited availability of subspecialised experts in breast care may affect quality-of-care, however continuous training opportunities and serious selective recruitment of expertise can improve staffing at breast care centres. Investment in support services can make all the difference as they are the behind-the-scene players who ensure satisfactory customer service. They form the active link between the patient and the medical team. It is helpful to simplify the patients' appointment scheduling process through assigning a single point of contact for re-scheduling all visits to the breast care centre. Training frontline staff to schedule newly identified breast cancer referrals, who need to be assessed promptly, is very important for smooth workflow. Referrals can be of different types, such as selfreferrals, physicians' referrals and institutional referrals. Patients' work flow can also be improved by decreasing overall duration of patients' visits to the breast care centre. Financial and geographic limitations can be improved by developing collaborative affiliations and partnerships with institutions that can offer virtual contribution to the breast care process. Despite all the challenges around the breast care centre, it has proved its crucial value in raising the bar of breast cancer care; it is becoming the standard-of-care for breast diseases in developed countries with well-defined requirements for accreditation and development of 'centre of excellence'.

CONCLUSION

The multidisciplinary breast care approach is the cusp of many life- changing clinical decisions and outcomes for breast cancer patients and their families. Fostering such collaborations create solutions far greater than any single idea. It is the way to alleviate and minimise patients' suffering from a disease that has touched the lives of so many families around the globe. It expands an open-access for breast cancer patients to channel through different referral avenues in order to reach a common pathway of standardised high quality of breast care, thus ensuring enhanced and extended lives. It is 'the way to go'.

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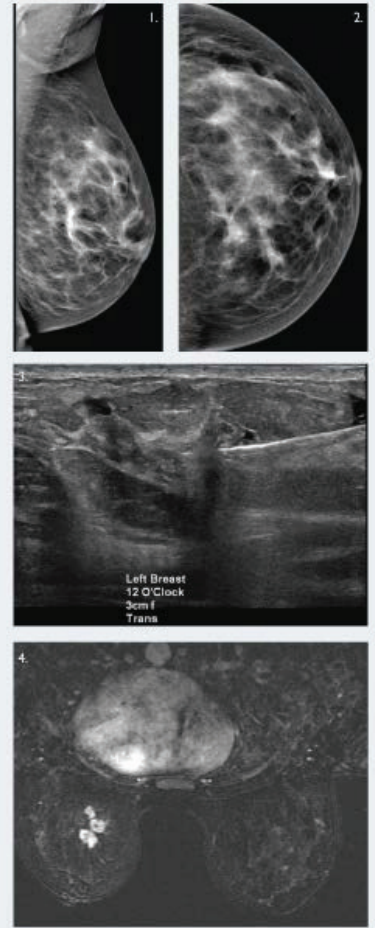
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AUTHOR INFO

1. Rola Shaheen, MD FRCPC, Acting Chair of Radiology & Chief of Women's Imaging at Mafraq Hospital-SEHA, Abu Dhabi, UAE, and instructor in Radiology at Harvard Medical School, Boston, MA, USA
2. Michael Wertheimer MD FACS, Director of Breast Care Center, Chief of Breast Surgery, Beth Israel Deaconess Medical Center, Associate Professor of Surgery at Harvard Medical School, Boston MA, USA

FIGURES 1-4: Left MLO (figure 1) and left CC (figure 2) unilateral diagnostic mammogram for 42-year old woman presenting with new palpable lump in the left upper central breast with no suspicious finding on mammogram. Targeted ultrasound for the palpable lump in the left breast showed vague hypoechoic area at 12 o'clock, which was core biopsied under ultrasound guidance (figure 3). Pathology of left breast ultrasound core biopsy was benign, however at multidisciplinary breast care conference, pathology result was found to be discordant with imaging findings on ultrasound, and further evaluation with breast MRI (figure 4) showed an irregular enhancing left breast mass in the upper, central to inner breast which was confirmed to be invasive ductal carcinoma on excisional biopsy.



Figures 1-4

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Research Article

Utilizing Fast Spin Echo MRI to Reduce Image Artifacts and Improve Implant/Tissue Interface Detection in Refractory Parkinson's Patients with Deep Brain Stimulators

Subhendra N. Sarkar,¹ Pooja R. Sarkar,² Efstathios Papavassiliou,³ and Rafael R. Rojas¹

¹Department of Radiology, Beth Israel Deaconess Medical Center, Harvard Medical School, 330 Brookline Avenue, Boston, MA 02215, USA
²School of Medicine, University of Texas Health Sciences Center, San Antonio, TX 78229, USA
³Division of Neurosurgery, Beth Israel Deaconess Medical Center, Harvard Medical School, 330 Brookline Avenue, Boston, MA 02215, USA

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Abstract

Introduction. In medically refractory Parkinson's disease (PD) deep-brain stimulation (DBS) is an effective therapeutic tool. Postimplantation MRI is important in assessing tissue damage and DBS lead placement accuracy. We wanted to identify which MRI sequence can detect DBS leads with smallest artifactual signal void, allowing better tissue/electrode edge conspicuity. **Methods.** Using an IRB approved protocol 8 advanced PD patients were imaged within MR conditional safety guidelines at low RF power (SAR ≤ 0.1 W/kg) in coronal plane at 1.5T by various sequences. The image slices were subjectively evaluated for diagnostic quality and the lead contact diameters were compared to identify a sequence least affected by metallic leads. **Results and Discussion.** Spin echo and fast spin echo based low SAR sequences provided acceptable image quality with comparable image blooming (enlargement) of stimulator leads. The mean lead diameters were 2.2 ± 0.1 mm for 2D, 2.1 ± 0.1 mm for 3D, and 4.0 ± 0.2 mm for 3D MPRAGE sequence. **Conclusion.** Low RF power spin echo and fast spin echo based 2D and 3D FSE sequences provide acceptable image quality adjacent to DBS leads. The smallest artifactual blooming of stimulator leads is present on 3D FSE while the largest signal void appears in the 3D MPRAGE sequence.

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