



Journal of ARMC

June, 2013
Volume 3, Issue 6

Arrowhead Regional Medical Center, 400 North Pepper Ave, Colton, CA 92324
ARMC Website: <http://www.arrowheadmedcenter.org>

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HISTORY OF MEDICINE: From Past to Present: Perspectives from Dr. Ebert

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Approved residency programs were originally designated by the American Medical Association beginning in 1910 and then the American Osteopathic Association (AOA) in 1936. Residency Review Committees were established in the 1950s; 1972 saw the

creation of the Liaison Committee for Graduate Medical Education and, in 1981, this was reorganized into the Accreditation Council for Graduate Medical Education (ACGME), its current oversight body. The AOA likewise provides residency oversight through its education committees, the specialty colleges' Residency Education and Standards Committee (RESC), and in the institution through the Director of Medical Education. In the future the two oversight committees may combine. Improved oversight has led to improved learning environments for residents and arguably better care for patients. Each institution has an official to facilitate this ACGME oversight. Here at ARMC, Dr. Emily Ebert has been the Designated Institutional Official for over 15 years. It is a privilege to gain her insights into ARMC and the culture of learning through her knowledge of residency education as it has transitioned over the past 25 years. What follows are some excerpts.

How did the position of the Designated Institutional Official (DIO) originate?

DIO's came into existence around the mid-1990s when the ACGME recognized that they needed one person overlooking the entire institution where residents were training. Prior to this, each residency was like a silo and had little to do with the other residencies, which each providing their own oversight. I started as a teaching faculty member after finishing my residency in

Galveston, Texas. Then I became the Graduate Medical Education Committee chair and, when the position of DIO was created, I said “OK I’ll do it,” the story of my life. I have been this hospital’s DIO since the position’s inception.

Can you tell me a little about how residency at ARMC has changed over the past years?

ARMC is our new name. We moved here in 2000. Before that, we were San Bernardino County Medical Center (SCMC) with a long history of being a teaching hospital from the 1920’s. Of course medical education then was much different than it is now. Residency then was essentially an apprenticeship. All doctors did these old-fashioned rotating internships. Upon completion, they would then go out and practice. There was not a formal residency education even for surgery. When I started working here in 1988, SBCMC had a Family Medicine residency and a Transitional Year program. Because of proximity to Western University, the programs began receiving D.O. applicants. This was what really generated some interest in pursuing a relationship with the osteopathic side of graduate medical education. Before that, it was allopathic and ACGME. Together the Family Medicine program and the school (Western) developed medical student rotations. From that interest grew the AOA accredited residency programs. The mid 1990’s saw the start of the AOA Family Medicine and AOA Traditional Residency. The number of AOA residency programs mushroomed after that. We went from two programs to many in just five or six years. The Obstetrics program started first, then Neurosurgery, then General Surgery, Emergency Medicine, Internal Medicine, Psychiatry, and Ophthalmology. The newest residency is the ACGME accredited General Surgery program. We have recently applied

for an ACGME Internal Medicine program and finished the site survey on April 10, 2013. Once launched, it will be run like Family Medicine, with AOA and ACGME intertwined.

How has residency education changed since you were a resident?

It has been revolutionized. Medical education originally was an apprenticeship. As we have learned more how adults learn, we have moved away from the apprenticeship paradigm. GME utilized adult education science from other fields and applied it to medicine to make it more effective. The next big change was a shift toward patient safety. This was marked with the publications *To Err is Human* in 1999 and *Crossing the Quality Chasm* in 2001. American GME realized that just restructuring education was not sufficient. We needed to take improvements in science from other areas like engineering and aerospace and apply that to healthcare and medical education. And that’s why we are developing a quality curriculum to interweave throughout the other curriculums.

How is ARMC working toward improving safety and quality?

I think safety and quality improvement is a huge emphasis across all residency programs. That is what the CLER visits are going to be. CLER visits are Clinical Learning Environment Review visits by the ACGME and are starting this academic year. It will be similar to Joint Commission surveys, where the whole institution’s quality apparatus and its patient safety apparatuses are reviewed. We are finding holes in our programs, and this will be the next big challenge. GME must ensure that their graduates are capable of creating safe and continuously improving clinical environments.

What have you seen as the biggest improvement in education?

Computers have made all the difference. I used to get out graph paper to make grids to figure out theophylline levels. You don't do that now. It is really the speed with which we can access things and the mathematical stuff you don't have to do anymore. When we first had PDAs and could look things up right at the point of care, that's what really helped. Before then, you could make a mental note or maybe you would have a paper note and you would wait until the end of the day to go and look stuff up. So having the capability of looking stuff up right at the point of care is a huge, huge difference.

What do you see as the most important thing to change in residency?

I believe medical care is way too siloed. Nurses tell me they are afraid to speak up when they see a resident making a mistake, because they think the resident might get angry. So too, residents feel they can't speak up to Attendings because they are above them. There is too much deference to the perceived Chief. That is dangerous. That is one thing we have learned from the aeronautical field where deference to the pilot can cause death. If the navigator knows there is a mistake, he or she must speak up. In medicine, it's the patient that loses. I don't know what the answer is, but I think we need to work at breaking down those silos and encourage collaboration across the team, recognizing we have the same goal of patient safety. If there was a way to instill that more in residency, I think that would go a long way to making patient care better, therefore making the residency better.

Do you think that has changed since you were a resident?

Yes, I think it has become better, but I think there is still further to go. When people who are not in healthcare come in and observe, they are appalled at how we talk to each other both across and within silos, even when one resident talks to another resident. Some may be due to stress, but the shortness, rudeness, and almost barking is not healthy for us and is not healthy for patients.

Finally how do you think residency has changed over the years in terms of patient care?

Residents used to take care of more patients. One of our concerns here is our busy service. One thing people say is, "When I was a resident I learned how to do this and was tougher than today's residents. We took care of even more patients than they take care of, so how can you say they need fewer hours?" Some people explain this by saying patients weren't quite as sick, but that's not quite correct. It's really more that there weren't as many things we could do for the patients and treatment choices were not as complex. You really get into trouble when you compare today's job description with previous years. Take it with a grain of salt when people talk to you about this, because it really is a different world. Residency programs have changed and will continue to change as health care progresses.

Authors note: I would like especially thank Dr. Emily Ebert for her work at ARMC and also Dr. Samir Johna for his dedication to excellence and guidance in this opportunity to reflect upon our history.

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HOW I DO IT: Mechanical Clot Retrieval

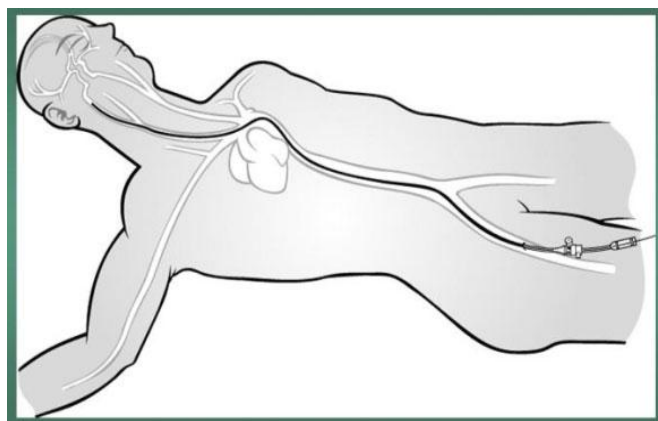
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Stroke is the fourth leading cause of death in the U.S. and the number one leading cause of serious, long-term adult disability. In 2012, there were approximately 795,000 strokes and according to the American Heart Association, by 2015, stroke is expected to be the number one leading cause of death or disability, surpassing cancer and heart disease. The annual cost of stroke in America is almost 500 billion dollars and is projected to reach one trillion dollars by 2030.

There are two form of strokes encountered in an emergency setting, ischemic and hemorrhagic. Ischemic stroke is typically due to a large vessel occlusion with debate on patient selection and mode of treatment remaining variable among stroke neurologists and interventionist alike. Generally, patients who qualify for mechanical thrombectomy usually are patients that present within six hours of time of onset (anterior circulation strokes), NIH score of greater than 8, either has failed IV TPA or is disqualified from the drug, plain CT is negative for any obvious hypodensity, the ischemic core is less than 50 ml and there is a perfusion mismatch (typically on CT perfusion). However, the inclusion criteria for patients to undergo mechanical thrombectomy are institution specific and dependent upon the physician's training and personal judgment. Adding to the decision to treat with mechanical thrombectomy is the recent IMS-III trial (NEJM March 2013) which questions its benefit over standard therapy. Despite these variables, mechanical thrombectomy remains an effective tool in the treatment of large

vessel occlusion. Each operator's training and skill level dictates the ability to perform a mechanical thrombectomy in a timely and proficient fashion. The description below describes one effective technique in treating large vessel occlusion.

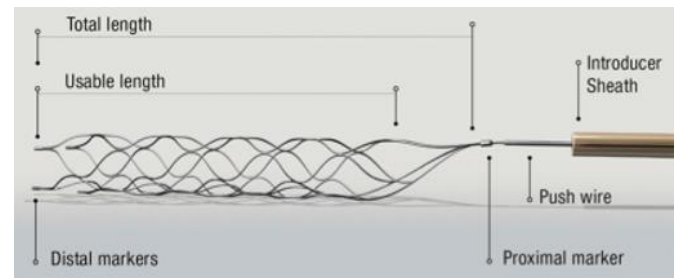
Various systems are currently available for the treatment of large vessel occlusion. MERCI, Penumbra, Solitaire and Trevo have all received FDA approval for the treatment of stroke. Solitaire and Trevo are the newest devices that extract clots via a retrievable stent technology. Many operators will utilize a single system. However, there has been an increasing trend of combining systems to synergistically improve on the effectiveness of one system and achieve clot retrieval. A common combination of systems includes the use of Penumbra intracranial catheters with stent retrievers. Barring exclusion characteristics of patient's age and vascular anatomy, femoral access is typically achieved through a large and long shuttle sheath, usually a 7F 90cm size shuttle that can handle various devices within its inner diameter. The extra length adds support to the extra cranial vessels. Many shuttles will also have a balloon tip mounted at its most distal portion for extra support and to assist in clot retrieval. The distal end of the catheter is typically parked at the most proximal segment of the common carotid artery near the ECA-ICA bifurcation.



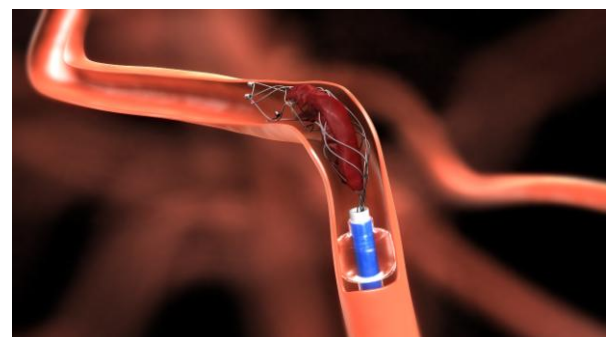
Penumbra has recently come out with a large bore sheath-catheter “Neuron Max 088”, which can be used as a shuttle sheath and can be parked within the cervical segment of the proximal ICA. After parking the shuttle, the next step is to advance a second catheter within the shuttle into the ICA and towards the distal cavernous ICA. Usually this can be done with a Neuron 070 or a 5MAX catheter with a Glide wire. The limitation of the Neuron catheter is that generally it is not advanced past the petrous portion of the ICA, due to the increase risk of dissection. The 5MAX catheter can be advanced through the cavernous ICA and it can be placed intracranial in the proximal segment of the MCA (M1). If the clot is more distal at the M1 or at the M1-M2 junction of the MCA, then a 4MAX catheter can be advanced proximal to the clot. At this point, the physician can decide to proceed with just suction of the clot with the Penumbra aspiration system or mechanical clot retrieval. Prior to March of 2012, the option would have been at this point to suction and mechanical thrombectomy (using a separator) with the Penumbra system or use MERCI (which requires a different catheter system). MERCI recanalization rates were approximately 48%, while Penumbra improved recanalization rates to 82%.

Solitaire FR Revascularization stent (Covidien) was FDA approved in March of 2012 and the following August, Trevo Stent (Stryker) was FDA approved for mechanical thrombectomy. The SWIFT and TREVO-2 trials compared the recanalization rates of Solitaire and Trevo versus MERCI (respectively) and the recanalization rates were almost 100%, often achieving TIC1 reperfusion grades of 2B or greater compared to MERCI. The advantage of Solitaire is its various available sizes of stent retrievers that can be used depending on the vessel wall-to-wall diameter size and length of clot. The

advantage of Trevo is that it has better visibility under live fluoroscopy over Solitaire. Also, Trevo comes only in a 4mmX20mm size, but their stent technology allows the device to be useful in various vessel sizes and tortuous anatomy.



Once the proximal segment of the MCA is accessed, an exchanged length microwire (Synchro-2 or Transcend) is typically used to penetrate through the clot and into the unknown. Based on the familiarity of the cerebral vascular anatomy and physician's experience, the microwire should be placed within the inferior division of the MCA, as it tends to be the straighter branch. The superior opercular branches of the MCA are usually more tortuous and accessing blindly can lead to vessel perforation, so care must be taken. At this point, a microcatheter (typically MarksMan or Trevo Pro-18) is advanced over the microwire and positioned over the clot with the distal tip of the catheter past the clot. The exchange microwire can be removed at this point. Based on the physician's preference, a Solitaire and/or a Trevo device can be advanced into the microcatheter.



The stent-retriever is un-sheath from the microcatheter under fluoroscopy visualization, leaving the stent within the clot and the microcatheter tip at the proximal end of the stent retriever. The stent is generally left in place for about 5 minutes. A digital subtracted x-ray run is done at midpoint, which generally shows recanalization of the vessel. Once ready to retrieve the stent, the automatic suction system from Penumbra is connected to the large shuttle sheath and turned on while re-sheathing the stent into the microcatheter and retracting the entire system into the 5MAX catheter. The combination of the Penumbra and Solitaire systems typically can achieve 90% recanalization on the first pull and nearly 100% recanalization on the 2nd and 3rd pull. Trevo system achieves similar results. Typical time line from needle to recanalization is generally 45 minutes to one hour with most cases achieving needle to closure of arteriotomy in less than 90 minutes.

The study of stroke is an evolving science and typically involves multifactorial modalities of treatments. The above description of a mechanical thrombectomy is one method of achieving revascularization and reperfusion of an ischemic brain. As of now, stent retrievers are the game changer in stroke treatment. Further research within our institution and nationwide is looking objectively at these devices and their efficacy of treating stroke. Our hope is that bringing this technology to ARMC will further improve the treatment of strokes in our patient population.

Research is to see what everybody else has seen, and to think what nobody else has thought.

~Albert Szent-Gyorgyi

SPOTLIGHT ON RESEARCH: Emergency Medicine

Osteopathic Manipulative Treatment in Tarsal Somatic Dysfunction: A Case Study

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Introduction

The tarsal bones (Fig. 1: navicular, cuboid, and cuneiforms¹) act as keystones to the pedal plantar arches, namely the longitudinal and transverse arches. They play a significant role in maintaining a high-efficiency spring in pedal mechanics whereby energy is conserved and anatomical cushioning optimized.² The effects of tarsal-created arches are demonstrated during motion kinetics or while holding static positions. While it is not uncommon to ambulate, stand or employ our feet in strenuous activities, such versatility may be lost secondary to acute alterations in anatomically normal positioning of tissues.

The bony pedal arches are supported by a number of muscles, ligaments and fascia that provide elasticity and maneuverability for storing and releasing energy while protecting arch integrity. The *longitudinal arch* is supported by the tibialis posterior muscle which has tendinous attachments to the navicular, first cuneiform and second, third and fourth metatarsal bases. This arch has two divisions: lateral and medial. The osseous structures in these arches include the calcaneus, the cuboid, and the fourth and fifth metatarsals laterally; medially, the talus, the navicular, three cuneiforms and the first three metatarsals. The *transverse arch* receives soft tissue support from the peroneus longus muscle laterally and tibialis anterior muscle medially with tendinous investments to the first cuneiform.³ Ligamentous and fascial reinforcement are

provided inferiorly by the calcaneonavicular and plantar aponeurosis respectively.

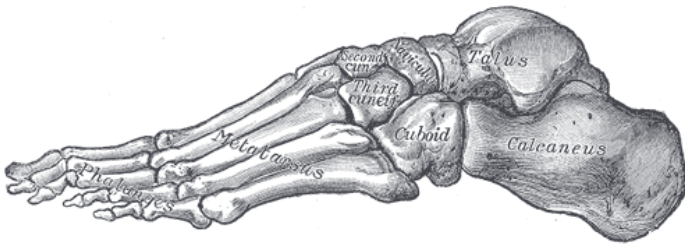


Figure 1: Lithograph demonstrating anatomical relationships in proximity to the cuboid bone.

Introduction of excessive forces upon soft tissues may result in strain patterns or tissue remodeling depending on chronicity of insult. Injuries are not limited to the foot and may occur distal to the knee, as in the case of medial tibial stress syndrome (MTSS). Deleterious changes in pedal structures have been associated with MTSS where a demonstrated increase in navicular drop and longitudinal arch deformation occurred during static postures and gait as compared to healthy individuals.⁴ The contiguous link of musculature and fascia between distal leg segments is causally evident and ultimately impacts the bony structures of the foot. In a like manner, acute trauma or situationally compromising force vectors to the foot can result in somatic dysfunctions.

Structural changes of the foot are typically presented to medical personnel when they become symptomatic; often associated with pain and reduced ability to perform weight-bearing activities. Inciting factors to somatic changes can include numerous etiologies such as age, obesity, occupation, shoe design, pregnancy, and soft or hard tissue damage, one of the most common of which is an ankle inversion injury.⁵ The resulting deformation of the longitudinal pedal arch may cause inferiorly displaced tarsal bones (tarsal subluxation) that induce strain patterns within the local tissues. Tarsal subluxation is a correctable somatic dysfunction through

the application of manual modalities. In this report, we present the case of a young woman with tarsal somatic dysfunction that resolved using osteopathic manipulative treatment.

Case History

A 24 year old Caucasian female presented with a chief complaint of left foot pain and tenderness located on the plantar surface. While running three days earlier she “rolled” her ankle and experienced discomfort when bearing weight on her left foot thereafter. Her pain was achy, constant, rated 4 out of 10 and remained unchanged throughout the day. She experienced mild relief after using a non-steroidal anti-inflammatory medication, but ultimately prefers avoiding medication if possible. She reported minimal swelling or discomfort at the ankle joint itself and denied difficulty with lower extremity movements. When questioned about her normal level of activity, she reports being actively involved in yoga, figure skating, running and dancing. The pain was interfering with these activities, making them less tolerable.

The case subject described her past medical history as non-recent sinus and ear infections with occasional muscle soreness after strenuous exercise. She denied any past surgical interventions. The only medications she uses regularly are birth control and daily vitamins. She has mild milk allergy, stating that she gets headaches after consuming large amounts of dairy products. She denied the use of tobacco products and consumes alcohol rarely. Her mother has fibromyalgia and her father died of lymphoma.

Upon exam, the patient was found to have a blood pressure of 118/76, heart rate of 68 beats per minute and respiratory rate of 18 breaths per minute. A focused exam of the

lower extremities was performed revealing point tenderness to the plantar surface of the left foot anterior to the calcaneus and inferior to the medial aspect of the cuboid bone which was everted about its anteroposterior axis as evidenced by a palpable fullness. There were no signs of infection, foreign body or cutaneous tissue damage. Pedal pulse, sensation, and both passive and active range of motion were found to be intact bilaterally. Leg lengths were equal while supine without evidence of internal or external rotation of the proximal or distal leg segments. Standing postural exam demonstrated mild discomfort when weight-bearing on the left foot. Iliac crest heights were equal with no evidence of genu valgus or varus. Pedal architecture was negative for pes cavus, pes planus, rotations that would cause toeing-in or out, or metatarsus adductus. No somatic dysfunctions were identified at the knee, fibular head, ankle mortise or forefoot, bilaterally.

Treatment

Treatment was performed using a high-velocity, low-amplitude (HVLA) thrust manipulation as shown in Fig. 2 (A-B).⁶ The treatment can be performed with the patient either lying prone on a table or standing. The ipsilateral knee is flexed 70-90 degrees to disengage the gastrocnemius and hung over the edge of the table if using the prone position. The physician cradles the dorsum of the dysfunctional foot with interlaced fingers while placing the thumbs on the plantar surface of the medial cuboid. The forefoot is brought into slight supination to open the lateral midfoot. The manipulation is achieved by slight extension of the knee, plantar flexion of the ankle, and finally the application of a dorsally directed force about 60 degrees laterally through the medial cuboid via the thumbs by means of the HVLA

thrust.^{3,5,7,8,9,10} It is recommended that “whipping” of the leg be avoided so as not to introduce extemporaneous forces to the talocrural joint.^{7,10} The patient may experience a significant decrease or full resolution of symptoms immediately following the manipulation of the displaced cuboid with minimal reoccurrence.^{5,7,10} In refractory cases, multiple attempts at manipulation may need to be performed for adequate results.^{5,7}

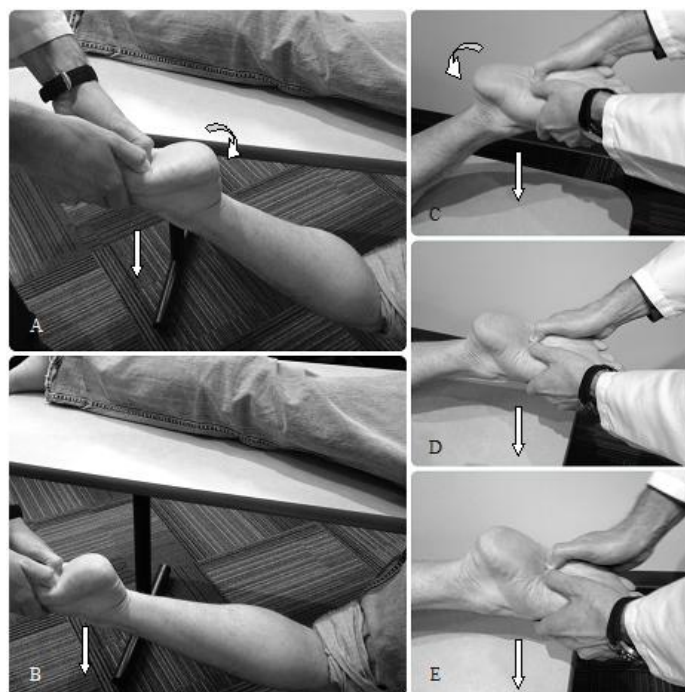


Figure 2: The cuboid manipulation in prone position with leg hung over the side of the table (A-B) or knee on the table (C-E) starting with 70-90 degrees of flexion at the knee. In one smooth movement, the knee is passively extended while the ankle is plantar flexed with mild supination of the forefoot (B, D, E) directing the operator's thumbs towards the medial border of the cuboid bone leading to a HVLA thrust at the end-range-of-motion.

While treating the case subject, there was mild discomfort adjusting the tissues prior to the directed thrust and relief was obtained shortly following the manipulation. Soft tissue treatment was performed for approximately one minute to encourage nociceptive dissipation.⁵ Reevaluation of the

foot demonstrated a decreased cuboid prominence on the plantar surface with minimal tenderness to palpation. It was recommended that she apply a cold compress to the area and use an over-the-counter non-steroidal anti-inflammatory medicine to minimize the pain and inflammation.

The patient found less discomfort with weight-bearing and ambulation immediately following treatment. In considering her active lifestyle it was suggested that she initially modify daily activities as necessary to permit the tissues to recover completely. She denied reoccurrence of discomfort at follow-up and had no problems returning to her daily activities within the first week following her therapeutic manipulation.

Discussion

Tarsal subluxation has been given a variety of names in the literature; this inconsistency of terminology has made it a poorly understood condition among health care personnel and lay persons alike.^{5,7} A subluxed cuboid or cuboid syndrome, as was presented in the case above, often presents with lateral foot pain that radiates to the plantar aspect of the medial foot, anterior ankle or lateral metatarsals and is commonly secondary to traumatic ankle inversion injuries.^{5,8} Swelling, ecchymosis and calcaneonavicular tenderness may also be noted along the lateral foot.⁷ Traumatic or genetic laxity of supporting ligaments and tendons contribute to the osseous displacement seen in cuboid syndrome including lateral malleolar discomfort commonly associated with ankle inversion injuries. Diagnosis of this condition is often made from the presenting history and clinical suspicion as roentgenographic interpretations may suggest normal architecture.^{5,7} Palpation may reveal cuboid prominence on the lateral plantar surface of the midfoot with a deeper-than-normal

groove distal to the styloid process of the fifth metatarsal.⁹ In severe cases, a shallow depression may be visible on the dorsal surface of the lateral foot above the medial surface of the cuboid bone.⁸ Special tests offer only limited information and are not reliable indicators of cuboid syndrome, but may be used in evaluating this condition and the differential diagnosis.^{5,7}

Once an accurate diagnosis has been made, treatment of a plantar subluxed cuboid is readily accomplished with osteopathic manipulative medicine. Reduction of the displaced bone is the initial step to relieving patient discomfort and is often performed through HVLA mobilization at the end of joint range.^{5,8} Other conservative methods have been described in the literature including therapeutic exercise, low dye arch taping, and padding.^{5,7} Despite technique simplicity, manipulation is contraindicated when neoplasms or other bone disease, gout, inflammatory arthritis, or vascular abnormalities are identified.^{7,8,10}

Modified versions of the manipulation have been described, but the general principle remains the same, cuboid reduction as a first-line treatment. “Cuboid squeeze”, “Hiss plantar whip”, “cuboid whip” and “black snake heel whip” are synonymous names that have been used to reference this treatment approach.^{3,7,10}

Post-manipulative care varies by operator, but it is generally encouraged to apply ice to the lateral foot for pain and inflammation control. Some practitioners employ massage, orthotics, ultrasound, or taping as part of therapeutic modalities for a subluxed cuboid with varied results. As described earlier, the most significant component of treatment is reduction of the displaced tarsal bone. Manipulation remains the conservative

therapy of choice in tarsal somatic dysfunction.^{5,7,8,10}

Conclusion

Ankle inversion injuries are common and often associated with cuboid eversion subluxation. Notably, a tarsal somatic dysfunction can be diagnosed through palpatory examination. Due to the limited knowledge of this condition, diagnosis and treatment of such anatomic aberrancy is contingent upon provider experience and therefore the diagnosis should be considered in the differential of lateral foot pain secondary to inversion ankle injuries.

The patient in this case study presented with pain at rest and during weight-bearing activities with tenderness to palpation on the plantar surface of the cuboid following a recent ankle inversion. Diagnosis was made based on the clinical findings and patient history. Complete resolution of symptoms was achieved after implementing the HVLA directed thrust technique described above. Osteopathic manipulative treatment modalities readily play a role in the conservative care of tarsal somatic dysfunction.

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FASCINATING CASE: Anabolic-Androgenic Steroid Induced Psychosis and Mania

Dr. Sambin Wang, DO

A 19 year old white male was brought to the psychiatric triage by police officers on an involuntary hold for being a danger to others. Officers were called to the scene where the patient was armed with a shotgun and hunting rifle, threatening workers on a neighboring construction site. After a 3 hour long stand-off, officers were able to convince the patient to surrender his weapons and he was transported to hospital for evaluation. According to police and medical records, patient has not had previous encounters with

either law enforcement or mental health institutions.

While in the lobby, he loudly accused Hispanic staff and security of being in league with the Mexican mafia and trying to kill him. On arrival to the Psych ER, he was visibly agitated, spoke in a pressured and circumstantial fashion, and continued to be very weary of Hispanics (both staff and other patients). He was given IM injection of ziprasidone due to aggressive posturing with positive effect. He refused to speak to the attending psychiatrist, who was Hispanic. During interview, he spoke in hushed voice, stating: "I know they could be listening". He explained that he was a student in a local university and that the construction workers were actually part of a Mexican cartel and they were plotting to kill him. He first started having this suspicion about 8 days prior to his admission. He cited evidence for this false belief based on being able to hear them through the walls (over the sound of construction taking place) talking about kidnapping local children, torturing trafficked immigrants as well as storing drugs and guns on the construction site. The patient reports that he saw them look in his direction and avoid eye contact as a sign that they wanted to kill him "for knowing their secret". He had not slept for 5 nights for fear that the workers would kill him while he slept, and had called 911 multiple times to report the workers of suspicious activity.

On the day of the inciting event, he heard/hallucinated one of the workers calling him a "peckerwood" which he interpreted as the code word to kill him. At which point he armed himself with his firearms and confronted the workers. Throughout the interview he showed impaired insight, citing self-defense, "anyone in my position would have done the same thing". His initial physical exam showed a

well-built male at 68 inches, weighing 224 lbs. with little body fat, receding hair line, and significant acne vulgaris. His blood work up showed Hgb=20, Hct=50%, AST=63, ALT=210, LDL=179. All other values were within normal limits. EKG, UA and urine drug screen were all normal.

The patient was admitted to the inpatient unit with a diagnosis of psychotic disorder likely due to anabolic abuse. He refused all medications and was placed on emergency medication for psychotic decomposition. Collateral information gathered from the family confirmed that he was a 2nd computer science major at the local university, and denied past psychiatric history for both the patient and his family. They also mentioned that he was an avid body builder and had been preparing for an amateur competition just prior to admission. By the 3rd day of admission he showed improvement in his paranoia and was able to interact appropriately with staff and peers.

Patient confirmed that he was taking testosterone cypionate injections for the last 2 years since he started seriously weight lifting. He could not give an accurate dose since he was doubling doses every 2 days in the last month in hopes of accelerating his weight gain. He estimates he was taking about 1.5 to 3 grams a week at the time of his admission. He admitted to imperfect memory of events, stating that he had never suffered from hallucinations or paranoia in the past while using steroids. However, he did acknowledge that he often got mood swings hours after injecting himself which often lead to arguments. For his first 4 days he was often seen on the unit doing weight bearing exercises (i.e. push-ups, lunges, sit-ups, etc.), but by the 5th day he was noted to be listless and very withdrawn. When asked about his mood, he stated that he felt no motivation to continue working out since he

felt he was getting thinner with each passing day. Instead he would spend most of his day in his room in bed and needed to be roused for his meals. He endorsed passive suicidal ideations saying “what’s the point of living if I have to be weak?” Daily physical exams did not show any discernible change in his habitus or weight. He was started on citalopram 20mg daily for his depressive symptoms. He also continued to have mild paranoia regarding his neighbors and requested that he be released to his parents’ house rather than his apartment. By his 7th day, he showed enough improvement in his mood and psychotic symptoms and was discharged with 2 weeks of medication and was urged to receive outpatient follow up.

What are anabolic-androgenic steroids?

Anabolic-androgenic steroids (AAS) are a class of drugs composed of synthetic analogues of naturally occurring hormones. They all have muscle building (anabolic) and masculinizing (androgenic) properties. Most analogues are testosterone or growth hormone. Testosterone and its analogues are generally considered the prototype AAS and the focus of this case study as growth hormone abuse has not shown cause for neuropsychiatric symptoms. Other drugs that may have similar effects are estrogen blockers (including aromatase inhibitors) and dehydroepiandrosterone (DHEA) which are much less often abused due to minimal or unproven anabolic effect. It should be noted that estrogen blockers are sometimes taken with other AAS to prevent gynecomastia, but by itself it rarely causes mood or psychotic symptoms. Because corticosteroids are also known to cause mania and psychosis it is often lumped together with AAS. However, abuse of corticosteroids which have no anabolic or androgenic properties is potentially low. Corticosteroids also have a wide range of legitimate medical uses in

sharp contrast to AAS, which are limited to hypogonadism, wasting syndrome in HIV infection, hereditary angioedema and Fanconi’s anemia. AAS are often used illicitly for performance enhancement and/or improvement of physical appearance.

Testosterone is a 4-ring compound that crosses the cell membrane to achieve physiological effect by altering gene expression. It has a variety of functions including spermatogenesis, regulating energy levels, maintenance of muscle trophism, and platelet aggregation (via expression of thromboxane A2 receptors), stimulate erythropoiesis, and regulation of HPA (hypothalamic-pituitary-gonadal axis). When used in supraphysiological doses it can result in severe untoward effects such as direct effects of testosterone or down regulation of the HPA. Most abusers take 10 to 1000 times the therapeutic dose due to down regulation endogenous testosterone. Intramuscular injection is the preferred route due to significant first pass elimination. As an anabolic agent, testosterone’s effects on muscle mass are dramatic and likely the main reinforcing factor for continued abuse despite consequences. AAS users perceive that workouts are more effective, that they can train longer, recover faster, and experience less fatigue.

Sign and symptoms of AAS abuse:

As seen in this case, the most dramatic and concerning symptom in AAS abuse is mania and psychosis. Often described colloquially as “road rage”, it involves irritability, aggressiveness, hypomania, and frank mania. It has been noted to cause criminal behavior that can lead to rape or even murder in people with no history of violence.

Other side effects of AAS abuse in adults include:

- Hemostatis - due to increased platelet aggregation
- Erythrocytosis - due to excessive erythropoiesis
- Hepatotoxicity - cause unknown but theorized to be due to cholestasis
- Hyperlipidemia - especially for LDL, cause unknown
- Infections - at injection site, usually due to poor decontamination
- Infertility and testicular atrophy - due to suppression of HPA axis resulting in down regulation of FSH and LH.
- Hair loss - due to direct effect of AAS. This is a permanent side effect even after cessation of AAS intake.
- Gynecomastia - due to testosterone being converted to estradiol. This is a permanent side effect even after cessation of AAS intake.
- Acne - due to increased sebum secretion

AAS withdrawal produces a clinical picture similar to depression. Patients complain of depressed mood, anhedonia, loss of appetite, sleep disturbances, and pronounced displeasure at loss of muscle mass. The resulting depression can be severe enough to cause suicidal ideations. The resulting withdrawal symptoms are most likely due to dysregulation of HPA axis resulting in low endogenous testosterone production.

Epidemiology

It is estimated that 890,000 American males and 190,000 American females have used AAS at one point in their lives with a life time prevalence of 0.5%. Across studies of high school students, it is estimated that 3-12% of

males have used AAS in their life time. When compared to data in the 1970's, where AAS use was mostly confined to the highest levels of athletes and body builders, the current levels of abuse show a shift toward an increasing number of young men who use these drugs purely to enhance performance and attractiveness rather than for any athletic purpose.

Diagnosis:

Clinical suspicion should always be high when encountering a young "bulked up" male with sudden onset of mania and psychosis. A thorough history and gathering of collateral information, especially about AAS use, is often enough to make a diagnosis in the absence of past psychiatric illness. Physical exam will show signs consistent with AAS abuse (see above). Blood work showing elevated H&H, liver enzymes, coagulation times, and lipids also raise the level of suspicion. If diagnosis is still inconclusive or if the patient is less than forthcoming, urinary tests can often give a definitive answer.

The urine testosterone/epitestosterone (T/E) ratio is often used by anti-doping agencies to detect exogenous testosterone use, any ratio over 4:1 is considered positive. The theory behind this test is that epitestosterone production is suppressed with AAS use while testosterone is replaced exogenously resulting in a higher ratio. The current gold standard in detection is the urine $^{13}\text{C}:$ ^{12}C ratio using a mass spectrometer. This test compares the carbon isotopes of urinary metabolites of testosterone, with the rationale that synthetic testosterone, made with plant sterols contain less ^{13}C . The advantage this test has over the T/E ratio is that it will come up positive (ratio will be low) even if

the AAS abuser takes exogenous epitestosterone to escape detection.

Treatment:

The ultimate goal of treatment is abstinence with proper symptom management of AAS abuse and subsequent withdraw. Antipsychotics have been shown to be effective for both affective and psychotic symptoms. SSRIs have also been shown to be effective for depressive symptoms in withdraw. Given the self-remitting nature of the mood symptoms, long term psychotropic medication is often not needed. For long term prevention of relapse, psychotherapy may be needed to help patients accept a more realistic build as AAS abuse is more fueled by social factors rather than physiological factors.

References

Sadock, J., Sadock, A. *Kaplan & Sadock's Synopsis of Psychiatry 10th edition* Lippincott Williams & Wilkins 2007

Moore, D., Jefferson, J. *Medical Psychiatry 2nd edition* Elsevier 2004

Synder, P. *Use of androgens and other hormones to enhance athletic performance* Retrieved on 4/16/2013 on uptodate.com

Sirois, F. *Steroid Psychosis* General Hospital Psychiatry 25 (2003) 27-33

NEW INNOVATIONS IN MEDICINE- ...but now I see

Eric Schluederberg, DO Family Medicine PGY I

Imagine you are visiting your blind grandmother; you arrive at her house and notice something different. She's sitting on the porch waving to you, before you even open your mouth to say hello. Her head follows you as you stumble up the driveway in disbelief. Smiling, she asks "Do you like my new sunglasses?" pointing to the odd pair of dark glasses she now wears. Laughing at your expression, she says, "Pick your jaw off the floor dear, and come in for some nice tea." and proceeds to walk away unaided.

Sounds far-fetched? Well as of February 2013 such a device has been approved by the FDA¹ for the treatment of blindness in patients with retinitis pigmentosa. Called the Argus® II and produced by the California based company Second Sight, this retinal prosthetic device restores sight to the blind. A small camera, mounted on a pair of dark glasses, takes video and transmits signals (via cable) to a small computer, the video processing unit, that transmits signals to an epiretinal implant surgically placed in the patient's eye. The implant consists of a small antenna and electronics case, which remain outside the globe, and a tiny 60 point electrode array attached over the retina. The array stimulates the retinal cells directly, bypassing degenerated photoreceptors. Patients learn to interpret these signals and are once again granted the gift of sight. The view afforded patients is comparable to a very pixelated black and white television, allowing recognition of light, shape, movement, and even large letters².

This device is a revolution for patients suffering from retinitis pigmentosa (RP).



**WELCOME
INCOMING
2013 INTERNS!!**

Previous treatments for RP include supplementation with vitamins A, E, and omega-3 fatty acids, but have only shown some benefit in very specific forms of RP³. Retinitis is actually a misnomer as the disease is not inflammatory; rather it is characterized by a progressive degeneration of photoreceptor and pigment epithelial function. RP's worldwide prevalence is estimated at 1 in 4000 to 5000, and affects approximately one hundred thousand people in the United States. Patients typically experience an insidious onset of night blindness and progressive visual field constriction which may go unnoticed until advanced progression of the disease. Visual acuity also decreases with the natural course, leading to significant impairment of activities of daily living. On ophthalmic examination a classic triad of retinal vessel attenuation, waxy optic disc, and "bone-spicule" intraretinal pigmentation is observed⁴. Experimental studies with gene therapy, retinal cell transplantation, stem cell research, and oral retinoid treatment are all taking place, but at this time there is no cure for the retinal degeneration associated with RP.

The Argus® II is an amazing medical innovation, but it is not without costs, risks, and limitations. The system itself costs over \$100,000 dollars and the surgery to implant the retinal prosthesis is performed at very few places in the United States. The chronic effects of long term direct electrical stimulation of the retina have not been studied fully, and could cause further retinal or optic nerve damage. Still, the Argus® II does something miraculous; it restores sight to the blind, and the technology behind it will only continue to improve.

1. <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cftopic/pma/pma.cfm?num=H110002>

2. [The Argus II epiretinal prosthesis system allows letter and word reading and long-term function in patients with profound vision loss.](#) da Cruz L, Coley BF, Dorn J, Merlini F, Filley E, Christopher P, Chen FK, Wuyyuru V, Sahel J, Stanga P, Humayun M, Greenberg RJ, Dagnelie G; for the Argus II Study Group. Br J Ophthalmol. 2013 May;97(5):632-636. Epub 2013 Feb 20.
3. Givre S. Retinitis Pigmentosa: Treatment, In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2013.
4. Garg, S. Retinitis Pigmentosa: Clinical presentation and Diagnosis, In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2013.

AT YOUR LIBRARY

New books in the library

- AHFS Drug Information, 2013.
- The Business of Nurse Management.
- Case Reviews in Ophthalmology.
- Current Medical Diagnosis and Treatment, 2013. [AVAILABLE in AccessMedicine]
- Drug Information Handbook for Advanced Practice Nursing.
- Drug Information Handbook for Nursing.
- Experimental and Quasi-Experimental Designs for Research.
- Family Medicine.
- Handbook of Neuroendovascular Surgery.
- Hepatobiliary and Pancreatic Surgery.
- Medicine: A Competency-Based Companion.
- MedStudy: Internal Medicine Review Core Curriculum. (5 Vol set)
- Memorizing Medicine.
- MKSAP 16: Internal Medicine, Part A. (6 Vol set)
- MKSAP 16: Internal Medicine, Part B. (5 Vol set)
- Nelson Essentials of Pediatrics.
- Operative Dictations in General and Vascular Surgery.
- Pathology: The Big Picture. [ONLY AVAILABLE Online]
- Pocket Emergency Medicine.
- Pocket Medicine: The Massachusetts General Hospital Handbook of Internal Medicine.
- Quick Answers Surgery. [ONLY AVAILABLE Online]
- Sabiston Textbook of Surgery.
- Total Burn Care.
- Wolff's Headache and Other Head Pain.
- Your Statistical Consultant: Answers to Your Data Analysis Questions.

RESEARCH PROJECTS AT ARMC

Are you interested in research? Are you a student, resident, staff, or faculty member at ARMC? Please contact the offices listed below to participate in any of the following ongoing studies. We thank all the faculty primary investigators of the following projects.

Emergency Medicine 909-580-6370

Alconcel, Franklin DO PGY II MacNeil, Colin DO PGY II	Estimated time of arrival of EMS for trauma alerts and activations.
Fenati, Greg DO PGY II Mamic, Marko DO PGY II	Link between allergies and psych disorder
Garabedian, Tigran PGY IV Ayvazian, Arbi PGY I	Manifestation of necrotizing fasciitis: a retrospective review of patients presenting to a San Bernardino County ED
Garabedian, Tigran DO PGY IV	Efficacy if 23.4% Nad on decreasing ICP
Horan, Jennifer H DO PGY II	Minor burn care in the Emergency Department
Johnson, Joshua DO PGY II Mittal, Geetanjali DO PGY II	Appropriate Utilization of EMS Transport to the Emergency Department
Johnson, Joshua DO PGYII	1.What items on the ERAS application correlate most closely with matching to an AOA-approved Emergency Medicine residency 2. Survey: Patient preference regarding electronic communication
Jones, Kevin DO PGY IV Begnoche, Amy DO PGY III Widenski, Amber DO PGY II	A comparison of outcomes after intravenous thrombolysis with rt-PA in a San Bernardino County Hospital: a retrospective study
Kuhnen, Keasha, DO PGY IV Jones Kevin, DO PGY IV	Retrospective analysis of the correlation between subjective abdominal pain and objective findings on CT in pts, with blunt abdominal trauma
Mamic, Marko DO PGY II	Testicular Torsion Study
McAfee, Lisa DO PGY IV	Do patients expect or want to be tested for HIV?
O'Kelley, Timothy DO PGY III Mesisca, Mike DO	A ten-year retrospective review of survival outcomes in patients undergoing emergency thoracotomy at a level II trauma center
Orhard, Derek DO PGY III Rundio, Jeff DO PGY III	Survey: Training practices regarding CT use in the ED
Roten, Ryan DO PGY IV	1.Utility of CT in cervical spine clearance in the acutely intoxicated 2. Palliative Care: Emergency Dept Attitudes and Barriers
Seng, Sakona DO, PGY III Weingrow, Daniel DO	Retrospective Analysis of the Effect of Assembly Bill X35 on MediCal Patients Presenting to an Urban Emergency Department with Non-Traumatic Dental Complaints
Welch, Mary E DO PGY III Minera, Gabi DO PGY III	Progressive lifestyle changes of Emergency Medicine Residents

Family Medicine 909-580-6236

Anand, Sumeet DO PGY III Whitson, Denise FNP	Smoking Cessation:Questionnaire Regarding the Self-Efficacy of Smokers
Elkarrar, Manal MD PGY III Lanum, David MD	The Effect of Three Years of Arrowhead Regional Medical Center Health Fair Screening on Breast Cancer Incidence
Hammes, Jillian, DO PGY III Brown, Joachim, DO	Locked-In Syndrome Secondary to Cerebral Infarction Involving the Cervical Spine, Pons and Medulla
Khajehgian, Sara, DO PGY III Brown, Joachim DO	Hemihypertrophy with a Ret Oncogene Negative Bilateral Pheochromocytoma, Thyroid Papillary Carcinoma, C-Cell Hyperplasia, Intratechal Nucleus Pulposus, and Breast Fibroadenoma: A Case Report
Knotts, Nicole, MD Balinos, Febbis MD	A Retrospective Analysis of Prostate Cancer Screening Conducted at Arrowhead Regional Medical Center Cancers Fairs
Nyirenda, Ndeka, MD PGY III Ebert, Emily MD	Formalizing a Pathway for Non-Urgent Psychiatric Referrals Between Mckee Family Medicine Clinic and Phoenix Behavioral Health Clinic
Prasad Chandarana, Aarthi, DO PGY III Brown, Joachim DO	Implementation of a Patient Centered Medical Home at Fontana Health Center: Identifying Obstacles and Exploring Solutions
Ramirez, Milton MD, PGY III Balinos, Febbis, MD	Incidence of Cervical Cancer at Arrowhead Regional Medical Center Cancer Screening Events
Thomas, Scott, DO PGY III	Hypertrophic Cardiomyopathy
Tompkins, Michael, DO PGY III Raval, Niren DO	Group-Based Lectures for the Patient: An assessment of Utility and Efficacy
Truong, My-Linh, DO PGY III Brown, Joachim DO	Sarcoidosis: A Diagnostic and Therapeutic Challenge
Welch, Patrick DO PGY III	Evaluating ARMC Mobile Clinic's Effectiveness in Helping to Lower the Rate of Medically

Diep, David DO PGY II Mowjood, Siraj DO Gemmell, Eda RN	Uninsured in the San Bernardino County through Arrowcare
Internal Medicine 909-580-6266	
Hadi, Molood, DO PGY III Fu, Jenn OMS-IV Farmond, Farbod DO Pumerantz, Andrew DO	Vancomycin sensitivity in MRSA strains causing hospital acquired pneumonia
Khackekian, Arsineh DO PGYII Shargh, Sean DO PGY I Arabian, Sarkis DO	Pulmonary Lymphangitic Carcinomatosis from Metastatic Gastric Adenocarcinoma: A Case Report
Khackekian, Arsineh DO PGYII Zall, Mona DO PGY II Chequer, Rosemary MD	A Likely Case of Anti-NMDA-Receptor Encephalitis in a Young female with Psychiatric Symptoms: A Case Report
Khackekian, Arsineh DO PGYII Mehta, Rita MD	Fulvestrant and Lapatinib in Extending Progression-Free-Survival in Brain Metastases From HER2/neu-Positive Breast Cancer: A Case Report
Reynolds, Kyle DO PGY III Khan, Tony DO PGY III Platt, Katrina, DO	Comparison of Outcomes in Varying Age Groups with Atrial Fibrillation and Stroke Based on Chads-2 Criteria
Mehta, Sapna DO PGY III Shargh, Sean DO PGY I Arabian, Sarkis DO	Impact of Prolonged Emergency Department (ED) Boarding Time and Delayed Transfer in Critically Ill Patients
Sorto, Fernando DO PGY III Vinn, Vanessa DO PGY III Phan, Hai MD	Septicemia in catheter related infections in dialysis patients at ARMC
Neurosurgery 909-580-1366	
Huynh, Katie DO PGY IV Lowe, Andrew PharmD Le, Tina PharmD	Does dihydropyridine calcium channel blockers lower serum sodium: amlodipine vs nifedipine on sodium levels.
Siddiqi, Javed MD Ramakrishnan, Vivek DO PGY IV	Anti-Epileptic Prophylaxis in Traumatic Brain Injury (TBI) Patients undergoing Craniotomy vs Decompressive Craniectomy Operations
Siddiqi, Javed MD Minasian, Tanya DO PGY III	An analysis of neuron specific enolase (NSE) in traumatic brain injury (TBI) patients
Ophthalmology 909-583-3419	
Rudometkin, Nathan MD	Investigation of Retinal Traction Associated with Lung Cancer
Tokuhara, Keith MD Storkersen, Kris MD	Role of Sub-Conjunctival Bevacizumab in Post Pterygium Excision Management
Pharmacy 909-580-0016	
Lowe, Andrew PharmD	Effect of Ketorolac Tromethamine (Toradol) on Pain Perception and Narcotic Use
Hiroshige, C. PharmD Love, Jessica Pharmacy	Recognizing and Evaluating Potential Causes of Hypoglycemic Events in Hospitalized Patients
Le, Tina PharmD Resident	Efficacy of High Dose Nutritional Vitamin D3 in Decreasing PTH Levels in Hemodialysis Patients as Compared With Paricalcitol
Ng, Steven PharmD resident	Anti-Emetic Effects of Dronabinol in Chemotherapy Induced Nausea and Vomiting
Psychiatry 909-580-3830	
Wang, Sambin DO PGY IV	Differentiating Between Pseudo-addiction and Drug Seeking Behavior in Pain Management: A Comparative Study
Surgery 909-580-3362	
Culhane, John MD Surgery	Amount of Residual Intra-gastric Feeding Formula in ICU Patients Undergoing PEG Placement or Tracheostomy Placement
Culhane, John MD Surgery	Retrospective Review of Muscle Relaxants as Adjunct to Standard Pain Management in Surgical Patients
Joe, Victor MD Surgery Sadia Khan, DO PGY IV	Does the Gail Model Help Stratify Women with Breast Imaging Reporting and Data System (BI-RADS) Classification 3 Lesions to Biopsy Rather than Short Term Follow Up?
Davis, Vivian Joseph DO, Woods, Bill	Transcutaneous Oxygen (TcPO2) Change Following Hyperbaric Oxygen Therapy
Joe, Victor MD Wong, David T MD	A Randomized Clinical Trial of Restrictive vs. Traditional Blood Transfusion Practices in Burn Patients
Wong, David T MD Raja Gnanadev Student	Intrathoracic Pressure of Patients Measured Through Chest Tubes
Dehal, Ahmed MD PGY II	Racial disparity in clinical presentation, treatment, and outcome among women with breast cancer: Analysis of National inpatient sample database

Dehal, Ahmed MD PGY II	Comorbidity and outcome after surgery among woman with breast cancer: Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II Woodward, Brandon MD PGY I Yamanishi, Frank MD	Simultaneous bilateral laparoscopic totally extraperitoneal inguinal hernia repair without mesh fixation: 10 years single surgeon experience
Dehal, Ahmed MD PGY II Hussain, Farabi	Risk factors for neck hematoma after thyroid surgery: Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II Hussain, Farabi MD	The Impact of Surgeon Volume on Incidence and Severity of Neck Hematoma after thyroid and Parathyroid Surgery: Ten Year Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II	Ten years trend analysis of breast cancer surgery: National inpatient sample database
Dehal, Ahmed MD PGY II	Screening colonoscopy and mortality from colon cancer: How much cancer are we preventing?
Khan, Sadia DO PGY IV; Quigley, Jeff DO PGY II	Birads Three Gail Model for early breast cancer detection.
Quigley, Jeff DO PGY II; Dr. Joe MD	ICU vs. Burn Unity-Normal Flora vs. Regular ICU
Quigley, Jeff DO PGY II; DR. Davis, DO	Osteopathic evaluation of vagal stimulation in cardiac dysfunction
Quigley, Jeff DO PGY II; Dr. Joe MD	Patterns of normal flora, colonization and infection in burn unit patients.
Lin, Erin DO PGY IV	Compare the complication rate of wound infection between tram flaps and tissue extender
Lin, Erin DO PGY IV	Case report: Trichobezoar
Gelvezon, Nani DO PGY IV; Dr. Hussain MD	Pancreatic head sparing duodenectomy in a trauma setting
Gelvezon, Nani DO PGY IV	Clinical case: brown-sequared plus syndrome in a trauma
Dr.Davis DO	Incidence of vertebral artery injury with traumatic cervical spine subluxations
McCague, Andrew DO PGY V; Dr.Navarro MD, Dr. Kong MD	Recurrent left chest mass: a case report
McCague, Andrew DO PGY V	Empyema neccessitans presenting as transient chest mass
McCague, Andrew DO PGY V	Osteopathic manipulation on trauma patients
McCague, Andrew DO PGY V	Percutaneous dilational tracheostomies in the emergent setting
Youngjin, Kim, MD PGY II	Acute cholecystitis and cholesterol level
Tumbaga, Gloria MD PGY III	SILS chole experience
Narayanan, Ragavan MD PGY III Tumbaga, Gloria MD PGY III	Randomized trial of out patient follow up with person or via phone
Tumbaga, Gloria MD PGY III	Posterior mesh seroma with goretex
Narayanan, Ragavan MD PGY III Tumbaga, Gloria MD PGY III	Safety of out patient cholecystectomy
Tang, Taylor MD PGY IV	A case report: Laparoscopic common bile duct exploration in 2 nd trimester pregnancy
Tang, Taylor MD PGY IV Hussain, Farab MD	Bi-absorbable staple line reinforcement for colorectal leaks
Traditional Year 909-580-1369	
Crouch, Andrew DO PGY I Miulli, Dan DO Lawrence, Teckah M.Ed. Gelfenbeyn, Kirill OMS-II	A hospital based study: comparison of size, severity and prognosis of hemorrhagic stroke in patients presenting with postive history of methamphetamine use
Custodia, Jason DO PGY I Miulli, Dan DO Lawrence, Teckah M.Ed.	Stroke as a causative event in the development of PTSD
Miulli, Dan DO Dahlin, Robert DO PGY I Lawrence, Teckah M.Ed.	Developing a comprehensive stroke system of care
Miulli, Dan DO	Determine best treatment options for patients with degenerative lumbar spine disease

Hakopian, David DO PGY I Carson, Tyler DO PGY I Lawrence, Teckah M.Ed.	
Miulli, Dan DO Jones, Sarah DO PGY I Lawrence, Teckah M.Ed.	Improving end of life care and choices in Spanish only speaking patients
Miulli, Dan DO Wood, Richard DO PGY I Lawrence, Teckah M.Ed.	Obtaining primary care providers and follow up for indigent patients with stroke
Persianinova, Maria DO PGY I Miulli, Dan DO Lawrence, Teckah M.Ed.	Blood pressure control to prevent incident of stroke in perioperative patients that are going under general anesthesia
Smith, R. Patrick DO PGY I Miulli, Dan DO Lawrence, Teckah M.Ed.	Developing a handoff tool for stroke patients: Can a simple tool help improve information exchange?
Vyas, Kunal, DO PGY I Miulli, Dan DO Johl, Jas DO PGY I Lawrence, Teckah M.Ed.	Incidence of Tersons Syndrome in patients with non-aneurysmal hemorrhagic stroke

Transitional Year 909-580-3367

Eaton, Philip DO PGY I Craig, Debra MD	Diffuse Hepatic Infiltration by Small Cell Carcinoma of the Lung Mimicking Alcoholic Cirrhosis
Green, Christopher MD PGY I Nguyen T.H Jalili M.	The Use of Polyvinyl Alcohol Copolymer in the Setting of Gastro-Intestinal Bleeding
Hadduck, Tyson MD PGY I Raoufi, Kambiz MD	An African American Woman with Behcet's Disease Complicated by Superficial Abscesses.
Jones, Jeffrey MD Craig, Debra MD	Multicentric Plasmacytic Castleman's Disease: A Case Report
Khadem, Nasim MD PGY I et al.	Characterizing Hypervascular and Hypovascular Metastases and Normal Bone Marrow of the Spine using Dynamic Contrast-Enhanced MRI
Littell, Kyle MD PGY I Velasquez, Juan MD	An Analysis of Anti-Septic Techniques Prior to Intra-Articular Knee Injections
Mahdavi, Paymohn MD PGY I Raoufi, Kambiz MD	ARMC MICU Re-Admission Rates
Nguyen, Bac MD PGY I Craig, Debra MD	Methicillin-Resistant Staphylococcus Aureus Orbital Cellulitis: A Case Presentation
Panther, David MD PGY I et al.	Eruptive Keratoacanthoma as a Complication of Fractionated CO2 Laser Resurfacing, and Combination Therapy with Imiquimod and Intralesional Methotrexate.
Patel, Amy MD PGY I Dr. Melendez	Resident Survey - Use of Electronic Devices in the Hospital for Patient Care.
Craig, Debra MD Ross, Phillip MD PGY I Tam, Tiffanie BS	Case Report: Hemoglobin of 1.7G/DL in an Adult with Vague Flue Like Symptoms

Womans Health 909-580-3470

Garcia, Sarah DO PGY IV Valenzuela, G. MD	Comparing the Rates of Detection / Diagnosis of Gestational and Overt Diabetes Mellitus Using Old vs New Screening Guidelines
Roloff, Kristina DO Valenzuela, G. MD	Nutrition in the Obese Gravid Patient: Is Improved Nutrition a Factor in Preventing Fetal Macrosomia?
Valenzuela, G MD Carter, Michael DO PGY III	Correlation of Lecithin-Sphingomyelin ratio >2 with amniotic fluid lamellar body count > 50,000 to determine fetal lung maturity
Valenzuela, G. MD Roloff, Kristy DO McNally, Lauryn DO PGY IV	External scar characteristics as an indicator for intra-abdominal adhesions at repeat Cesarean section
Valenzuela, G. MD	Interval From Skin Incision to Delivery of the Newborn: The Effect of Body Mass Index
Valenzuela, G MD	Tubal Sterilization Disparity in Ethnic Groups
Valenzuela, G MD	Did ACOG 2012 change of guidelines have an effect upon rates of trial of labor after cesarean section?
Valenzuela, G MD	Changes in the Incidence of Severe Shoulder Dystocia
Valenzuela, G MD	A review of our experience at ARMC of how accurate the fetal fibronectin test has been in the detection of preterm labor

POSTER PRESENTATIONS FOR ARMC'S 7TH ANNUAL RESIDENT RESEARCH DAY

1. *Sumeet Anand, Denise Whitson*

SMOKING CESSATION: QUESTIONNAIRE REGARDING THE SELF EFFICACY OF SMOKERS

2. *Joshua Batt, Michael M. Neeki*

OSTEOPATHIC MANIPULATIVE TREATMENT IN TARSAL SOMATIC DYSFUNCTION: A CASE STUDY

3. *Amy Begnoche, Amber Widenski, Kevin Jones, Carol Lee*

A COMPARISON OF OUTCOMES AFTER INTRAVENOUS THROMBOLYSIS WITH
RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR

4. *Tyler Carson, Katharine Schulz, Evan Robinson, Dan Miulli, Javed Siddiqi*

ENDOSCOPIC THIRD VENTRICULOSTOMY FOR THE TREATMENT OF
NEUROSYPHILIS INDUCED OBSTRUCTIVE HYDROCEPHALUS

5. *Carrie Clark, Michael M. Neeki, Rodney Borger, Wang Yuen,*

THE USE OF TPA IN PSYCHOGENIC PSEUDOSTROKE

6. *Debra Craig, Phillip Ross, Tiffanie Tam,*

CASE REPORT: HEMOGLOBIN OF 1.7G/DL IN AN ADULT WITH VAGUE FLU LIKE SYMPTOMS

7. *Andrew Crouch, Dan Miulli, Teckah Lawrence, Kirill M Gelfenbeyn*

COMPARATIVE CEREBROVASCULAR DISEASE ASSOCIATED WITH METHAMPHETAMINE ABUSE:
A POPULATION BASED STUDY

8. *Ahmed Dehal, Farabi Hussain,*

RISK FACTORS, CLINICAL, AND ECONOMIC CONSEQUENCES OF NECK HEMATOMA AFTER
THYROID AND PARATHYROID SURGERY: TEN YEARS ANALYSIS OF
NATIONAL INPATIENT SAMPLE DATABASE

9. *Ahmed Dehal, Farabi Hussain,*

THE IMPACT OF SURGEON VOLUME ON INCIDENCE AND SEVERITY OF NECK HEMATOMA
AFTER THYROID AND PARATHYROID SURGERY: TEN YEARS ANALYSIS OF
NATIONAL INPATIENT SAMPLE DATABASE

10. *Ahmed Dehal, Brandon Woodward, Frank Yamanishi*

SIMULTANEOUS LAPAROSCOPIC TOTALLY EXTRAPERITONEAL REPAIR OF BILATERAL
INGUINAL HERNIA WITHOUT MESH FIXATION: REVIEW OF ONE SURGEON EXPERIENCE.

11. *Ahmed Dehal, Sunal Patel, Patrick Nguyen, Samir Johna*

IMMUNE THROMBOCYTOPENIC PURPURA AND DEEP VENOUS THROMBOSIS IN
PATIENT WITH ACUTE STEROID REFRACTORY ULCERATIVE COLITIS: A CLINICAL DILEMMA

12. *Philip Eaton, Debra Craig*

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Dates to remember...

- ✚ Deadline for submissions to the next issue of JARMC: **August 20th, 2013**
- ✚ OPTI-West 7th Annual Resident & Faculty Development Research Conference
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