THE Journal
OF THE ARKANSAS MEDICAL SOCIETY
Vol.112 • No. 6
OCTOBER 2015

Telemedicine Expanding in Arkansas

Examples – UAMS and Beyond

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by CASEY L. PENN

ON THE COVER

Telemedicine Expanding in Arkansas 78

Examples – UAMS and Beyond

WHAT HAVE WE DONE FOR YOU LATELY? 77

DAVID WROTEN, *EXECUTIVE VICE PRESIDENT*

A Closer Look at Quality 84

CASE STUDY 82

Fontal Sinus Mucocele Manifests as Persistent Draining Abscess of Upper Eyelid

By John D. Pemberton, DO MBA;[1,2] Alice Behrens, BS;[2] Michael Salter, MD[1,2]

Disconnective Hemispherotomy for Medically Intractable Status Epilepticus in an 8-Year-Old Child 86

By Lucas Bradley, MS, MD; Diaa Bahgat, MD, PhD; Gregory Sharp, MD; Erin Willis, MD; Eylem Ocal, MD; Gregory Albert, MD and Demitre Serletis, MD, PhD

SCIENTIFIC ARTICLE

Budd-Chiari Syndrome in a patient with Multiple Hypercoagulopathies 90

By Shashank Kraleti, MD

PEOPLE+EVENTS 94

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How do you feel about Medicaid Managed Care?

DAVID WROTEN
EXECUTIVE VICE PRESIDENT

It was a big week at the Capitol. The Health Reform Legislative Task Force met for two straight days the week of August 17th, and while they are not close to reaching any conclusions, two things stood out, one like a sore thumb.

Governor Asa Hutchinson made a presentation to the task force on what he'd like them to consider as part of any future plan to replace the private option. That followed the biggest news of the day where the governor seemed to be saying very clearly that, given the economics from the influx of federal dollars and the human impact on the lives of over 200,000 Arkansans, some form of health care program to replace the private option was essential. The numbers tell the story. In an analysis performed by the consulting group hired by the Task force, the private option will have a positive impact on state funds exceeding $400 million over a five-year period (2017-2021).

While you are digesting that last statement, here are the seven proposals the governor has asked the Task force to consider including in any Private option replacement. For reference, remember that the Private option coverage applies to individuals and families making less than 138% of federal poverty.

>> *I'm asked frequently if I believe the state would really consider moving to a capitated managed care model.*

Mandatory employer-sponsored insurance premium assistance – if your employer provides coverage you should be on that plan rather than the expansion plan, but for those who would otherwise qualify for the expansion plan, there would be premium assistance to help cover co-pays and deductibles.

Modest premiums for individuals making over 100% of federal poverty level – no greater than 2% of their income.

Work training referrals for unemployed and underemployed as a condition of obtaining coverage.

Eliminate non-emergency transportation coverage. (We think he meant for working individuals.)

Achieve cost savings in the current Medicaid program. No specifics.

Limit access to the private market coverage (replacement for the private option) to working individuals. Non-working individuals would still qualify for traditional Medicaid.

Strengthen program integrity.

The agenda for the second day of the task force meeting should really get your attention. The agenda included presentations from nine companies seeking to convince the task force that for the traditional Medicaid program, the state should move to a capitated Medicaid Managed Care system for which they all would be more than happy to submit bids. Each of them were invited for the stated purpose of discussing their programs for long term care and behavioral health. But, nearly all of the companies were very direct in encouraging the state to move ALL of Medicaid to their programs. All made promises of higher quality, lower costs, satisfied customers and happy providers.

Several of the task force members asked pointed questions and these companies had to temper their promises for savings against the backdrop of the initiatives already in place or under development for hospital and physician services (i.e. PCMH, episodes of care, etc.). However, these are big hitters and you should know who they are:

Amerigroup (Virginia), Centene (Missouri), AmeriHealth Caritas (New Jersey), United Healthcare (Minnesota), Meridian Health Plans (Michigan), Aetna, Inc. (Connecticut), Molina Health (California), Magellan Health (Arizona), and Shared Health/Arkansas BCBS (Tennessee and Arkansas).

I'm asked frequently if I believe the state would really consider moving to a capitated managed care model. My response is that everything is on the table, these companies have all hired lobbyists and are pushing for a piece of Arkansas. AMS has submitted its position against such a move to every member of the task force and the governor. It is also clear that they are hearing from physicians in their district. But could it happen? Absolutely. AMS

by CASEY L. PENN

Telemedicine Expanding in Arkansas

Examples – UAMS and Beyond

Last month, The Journal shared a look at The Telemedicine Act (Act 887) that passed into law during the 2015 legislative session. (Read full article at arkmed.org) The law encourages the use of telemedicine while providing clear parameters and assurance of reimbursement for eligible services provided. To recap, Sen. Bledsoe sponsored the bill in the Senate, having introduced it in an effort to increase access to health care in rural areas of the state. "I believed that no matter where you are in Arkansas, you ought to have good health care," said Sen. Bledsoe, who worked hard in support of the bill along with AMS, Rep. Deborah Ferguson (sponsor in the House), AMS Counsel David Ivers, and state expert Curtis Lowery, MD. Ivers called the final law a "foundation for how we regulate telemedicine in this state for years to come."

This month, we finish the discussion and share a few of the many ways telemedicine and related technologies – video, mobile apps, iPads, and more all of the time – are being used in Arkansas. The state's foremost expert on telemedicine and the founder of UAMS Center for Distance Health, Curtis Lowery, MD, talked to *The Journal* regarding appropriate uses of telemedicine – the sort of thing he fought for through his support of Act 887. "Doctors and pharmacists were the first to use telephones," he said. "And, of course, doctors can't always be on call, so it became common practice [also] to have someone take call for you. You would have an agreement with another doctor, who would have done a history, physical and lab work. In other words, the patient had a doctor."

"We're in a place now where some want to redefine that relationship. In many cases, telemedicine companies do not require the patient to have a doctor. The customer can call and talk to a company-assigned physician. That physician may render an opinion and call in a prescription or otherwise treat the individual without further contact or follow-up. I firmly believe that to be wrong. Anything done needs to support the doctor-patient relationship.

"No one in a million years would have predicted that a medical board would get sued to do telephone health care or internet health care," said Dr. Lowery. "We're going into areas of grayness now, but I do think there's a point, as doctors, where we should allow some things to be done."

With The Telemedicine Act in place – and with the Arkansas State Medical Board tasked with clarifying the doctor-patient relationship – the path is clearer for physicians and other health care providers to move forward with the safe use of telemedicine in Arkansas.

Spreading Knowledge

No stranger to technology, Dr. Lowery recalled the initial reasons he had for starting The Center for Distance Health (CDH) in 2003. "At one point, there were two maternal-fetal medicine specialists in Arkansas – myself and one other physician," said the doctor. "With 40,000 deliveries on average each year – upwards of 10,000 of those being high risk – we had to come up with a way to use my expertise where it was needed. The Center came out of that and represented a solution to my problem."

CDH provides care across a distance. "It works the same as when our practice, prior to this, would use referrals," he explains. "What we do here is fundamentally the same. Instead of referring a patient to Little Rock, physicians refer him or her to the Telemedicine Network, where specialists like myself may render an opinion and offer treatment and support. We may see a patient several times, and there is always someone who has already done patient history and physical. If not, we'll do one here."

CDH and the technology within continue to evolve. Thus far, specialists from the center are assessing burn patients, performing ultrasounds in high-risk pregnant women, conducting neonatal and trauma consults and more.

They are doing much of this remotely. "Distance health allows better interface between higher-level and lower-level centers," explains Dr. Lowery. "Through it, tertiary care centers and smaller hospitals can interact with even smaller systems and make better decisions about management of patients. The question is, how do we build this virtual health care system that will support the community and support the patients and help everybody be more efficient as caregivers?"

TELEMEDICINE IS ALIVE AND GROWING AT UAMS through various initiatives and established telemedicine services. A few areas of note include the following.

The **Antenatal and Neonatal Guidelines, Education and Learning System (ANGELS)** is an innovative consultative service that was started to support Arkansas obstetrical and neonatal providers and their high-risk pregnant patients. ANGELS offers 24/7 support via a telephone call center, education, and direct care that is available face-to-face as well as via interactive video.

Since its beginning, the ANGELS model has been used to launch additional telemedicine programs as well. One example is **ANGELS' Mobile Preeclamptic Monitoring**, a postpartum home-monitoring system designed to enable preeclamptic women to return home sooner after delivery, thus reducing inpatient stays among these women. The monitoring is done via tablets that are equipped with secure interactive video capabilities and broadband access.

Another program that helps deploy continuing education on behalf of ANGELS is **Learn on Demand**, an online education portal meant to increase access to clinical and telemedicine knowledge at any time from any place. In its first year alone, more than 6,500 physician participants from 32 states accessed Learn on Demand topics such as postpartum hemorrhage, obesity complicating pregnancy, bonding after birth, and end-of-life issues and pregnancy.

Corrections Telehealth (based in Nashville, Tenn.) has signed a contract with UAMS to expand services to the Department of Community Corrections facility in Pine Bluff to eliminate transports of pregnant inmates and provide better prenatal care within the prison using interactive video conferences with the capacity to conduct live ultrasounds. **County Detention Centers** are also seeking telemedicine programs to provide improved health services for all inmates at local facilities. As demonstrated by the pilot conducted with the Jefferson County Detention Center, they hope to decrease costs related to travel and security concerns while transporting inmates for medical management.

UAMS has created a statewide system of support for patients with sickle cell disease and the physicians who care for them. **The Sickle Cell Call Center**, staffed by registered nurses 24/7, will soon be in place to offer telemedicine consults to patients and physicians through telemedicine equipment. Technology will include interactive video consultations and 24/7 triage call center. The mission is to increase access to adult sickle cell care throughout Arkansas and triaging care for recommendation of emergency, primary and self-care.

Emergency Room Doctors on Call (ER-DOCS) is a pilot program that will connect physicians in rural areas access with UAMS Emergency Department faculty 24/7. The program is set to begin at Piggott Community Hospital in Clay County. The goal is to use telemedicine consultations to decrease unnecessary transfer of patients while ensuring best practices through the implementation of proven clinical protocols and following guidelines across the HIPAA-compliant Arkansas e-Link Network.

UAMS is currently working with Magnolia Regional Medical Center and the UAMS Regional Centers in Magnolia and Texarkana to offer **Tele-Cardiology** consults with patients in these rural communities to increase accessibility to specialty care.

> ***"With The Telemedicine Act in place – and with the Arkansas State Medical Board tasked with clarifying the doctor-patient relationship – the path is clearer for physicians and other health care providers to move forward with the safe use of telemedicine in Arkansas.***

In partnership with the Arkansas Department of Health and UAMS, infectious disease specialists are working with local health units in rural locations to help them better manage and treat HIV patients. Through interactive video technology, The **HIV Rural Health Telemedicine Program** has improved self-care capabilities in HIV patients and brought care to this at-risk population, especially those who may live far from an urban center familiar with HIV care. In addition to clinical sup-

port from UAMS infectious disease specialists, the program provides HIV/AIDS telehealth-based education to rural providers in Arkansas through HIV Heart (Health, Education, Assessment, Research, Telehealth).

Education is a large component of **Telehealth and Obstetrical Neonatal Exchange (ONE Team)**, a weekly teleconference focusing on education for nurses and health educators working in the obstetrical, neonatal, pediatric and women's health fields.

The Arkansas eLink Network* and UAMS are currently beta testing a new line of **m-Health technology** products that will make telehealth more cost effective and easier to access for patients and providers wishing to utilize it for clinical or educational opportunities. By utilizing mobile technology devices such as iPhones or Android devices, the products will offer face-to-face communication from a web-based platform while remaining HIPAA compliant. The anticipated launch of this new line of products is fall of 2015.

In collaboration with the Arkansas Department of Human Services, UAMS also manages the **Arkansas Stroke Assistance through Virtual Emergency Support (SAVES)**. As the name suggests, SAVES uses interactive video capabilities to deliver clinical consultations to help treat stroke patients when they need it most – from the emergency room.

UAMS IS NOT ALONE in its use of life-saving connective technologies. Arkansas Children's Hospital, Baptist Health and other groups have been using telemedicine for years and continue to grow into new areas. ACH has been utilizing telemedicine for several years as part of the ANGELS network and other initiatives. Currently they are providing remote consults for Burn, Audiology, Genetics in Arkansas as well as other states, Asthma Education, NICU, Fetal Echocardiograms, Remote reading of Echo's, and Urology, according to the Legislative Broadband Report.

"Baptist Health has been a leading partner in the use of telehealth around the state, with nine hospitals and 45 clinics wired for telehealth utilizing the Arkansas e-Link Network and the Baptist Health network. The eICU program there is currently operational in 17 hospital facilities around the state and has recently expanded to several facilities outside the state," said CDH Program Manager Alan Faulkner, naming just one example.

Practical Application

"With the enactment of The Telemedicine Act in Arkansas, now is the time to embrace the use of clinical telemedicine in Arkansas. Providers who are interested in using telemedicine should consider joining Arkansas e-Link*, where they can tap into existing telemedicine programs or launch their own," said Dr. Lowery. "As health care is under pressure to change, you'll see more of these programs start that will eventually take care to the level of the patient. The ultimate goal is to provide more care to the patient, closer to home, and thereby drive down costs and burden to patients."

Cost is a continuing factor. "Every year, physicians and hospitals are asked to do the same thing with less money. If we don't adapt to that, it's going to be difficult for people to make livings."

The takeaway, for Arkansas physicians, is to find ways to adapt. "Technology is changing health care," said Dr. Lowery. "When changes come, we have to be able to adapt or be left behind. The goal for us as physicians is to figure out the right thing for the patient."

Helpful Resources & Follow-Up

For information related to accessing hand specialists in Arkansas, physicians may call Arkansas Trauma Communications Center at (501) 301-1409.

Arkansas eLink* allows physicians to tap into** *existing telemedicine programs or even launch their own. It was created when a Broadband Technology Opportunity Grant was awarded to UAMS, to build a statewide Telehealth/Education Network. The network consists of hospitals, medical clinics, mental health clinics and higher educational facilities. For a fee, members have access to 24/7 video call center support, virtual meeting rooms, equipment, software and continuing education opportunities. They also have the ability to connect to over 1200 endpoints (pieces of video equipment and software clients), or offer their own services across the network (Baptist offers cardiology consults, for example).* ***For information about Center for Distance Health or UAMS telemedicine programs, contact Alan Faulkner at (501) 603-1271.

Arkansas Blue Cross Blue Shield / Health Advantage Launch Telemedicine Pilot

Learn more at arkbluecross.com or email rfhundley@arkbluecros.com.

In April 2014, Arkansas Blue Cross Blue Shield (ABCBS) and Health Advantage initiated coverage of certain telemedicine services. Recognizing the potential value of telemedicine for a largely rural state, these payers initially focused coverage on some areas of greatest need and potential value in Arkansas. Randal Hundley, MD, Medical Director for ABCBS, explains the pilot for any clinics who may be interested. "We selected maternal-fetal services (consultation, ultrasound, and genetic counseling) and mental health services (psychiatry, counseling, medication management) for our telemedicine pilot," said Dr. Hundley. "Our intention had been to increase the breadth of covered services to other areas of medicine in a stepwise fashion, considering the potential impact of each type of service.

"Given passage of Act 887, we are in the process of revising our coverage policy to comply with the legislation; the revised policy will take effect January 2016. During the first 16 months of our telemedicine pilot, we have seen utilization by psychiatrists and other mental health professionals, maternal-fetal specialists, pediatric cardiologists, and others. The pilot is open to all network providers in Arkansas who meet the policy requirements; it is not limited to specific individuals. We have followed industry-standard billing norms, and we discovered that there is a learning curve for those who have not previously billed for telemedicine services. Because billing for telemedicine is more complicated than billing for routine services, our network development representatives are available to meet with providers and office staff to answer questions. The actual coverage policy for telemedicine is available on our website at arkbluecross.com." AMS



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CASE STUDY

Fontal Sinus Mucocele Manifests as Persistent Draining Abscess of Upper Eyelid

John D. Pemberton, DO MBA;[1,2] Alice Behrens, BS;[2] Michael Salter, MD[1,2]
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Abstract

Paranasal sinus mucocele and pyomucocele have a wide spectrum of symptomology and chronicity of clinical manifestations. We present a case of a 52-y/o previously healthy homeless male that presented with a 2-week history of a non-tender, persistently draining upper eyelid abscess, and 1-year history of nonspecific change of general appearance to his left eye.

Background

A sinus mucocele is an expansive lesion that is lined by ciliated columnar epithelium. It forms by the accumulation and retention of mucoid material, which follows obstruction of the sinus ostium. Mucocele of the paranasal sinuses is a well-described complication of chronic sinusitis in adults and commonly associated with sinusitis. Sinus mucocele often presents with orbital sympomatology. The clinical presentation is dependent on which sinus is involved. One large study series found proptosis (80%), while another found headache (56%), and maxillofacial pressure (38%) as the most common presenting symptoms.[1,2] Other common symptoms include forehead swelling, nasal congestion, nasal drainage and symptoms of chronic rhinosinusitis.[3] We describe an unusual case of a patient with a frontal sinus mucocele that presented as orbital cellulitis and a ruptured upper eyelid abscess.

Case

A 52-year-old homeless male presented with two weeks of persistent purulent discharge from the left upper eyelid (Figure 1). Over the past year, he had been told by others that his left eye looked abnormal. He initially sought care at an outside hospital where he was treated empirically with trimethoprim-sulfamethoxazole and dicloxacillin without improvement. He denied fever, pain, diplopia, or vision changes. He denied history of prior trauma, diabetes, cancer, or taking immunosuppressive medications. Examination demonstrated left proptosis, hypoglobus, limited ocular motility, and a left upper lid abscess. Oribtal computer tomography scans revealed pan-sinusitis, orbital cellulitis, and inferior left frontal sinus erosion (Figure 2). Cultures of the left upper eyelid demonstrated Group C Streptococcus. He was admitted and started on empiric therapy with intravenous vancomycin and ampicillin/sulbactam. The cultures later demonstrated sensitivity to the initial empiric IV treatment. His signs and symptoms slowly improved after 10 days of therapy. He was discharged on oral amoxicillin/clavulanate and continued to improve at one-week follow-up. Sinus surgery was subsequently planned but the patient never returned. This case likely represents asymptomatic fistualization of a frontal mucocele through the orbital roof and upper lid with subsequent orbital and lid cellulitis after the fistula became super infected with Group C Streptococcus.

Figure 1: *A persistent draining abscess of left upper eyelid. There is also extensive left upper lid induration and conjunctival chemosis.*

Discussion

Mucoceles of the sinuses are nonmalignant expanding lesions that primarily occur during the third and fourth decades of life. Both genders have similar incidence, but in children under age of 5, male has predominant incidence. A mucopyocele is created when a mucocele becomes inflamed and infected. The pathogenesis of a mucopyocele starts with obstruction of the sinus. This is followed by a superadded infection leading to chronic production of cytokines, prostaglandins, and fibroblast proliferation. These factors stimulate bone resorption and accommodate mucocele expansion.

Primary sinus mucoceles are of idiopathic origin without a known history of any predisposing factors. The natural history of primary sinus mucocele is not well studied based on our literature search. Secondary sinus mucocele has a previous history of ipsilateral craniofacial trauma, sinonasal or upper gingiva procedures. Different causes of sinonasal insult have disparity of time interval between onset and diagnosis of mucocele. Time intervals from onset of insult to diagnosis of mucocele in an increasing order are functional endoscopic sinus surgery (FESS), maxillofacial trauma without history of surgery, and open surgery. However, recurrence rate of mucocele is lower in FESS than open surgery.[4] Other identifiable causes of mucoceles included mucosal thickening from chronic sinusitis, nasal polyps, and osteoma. Isolated paranasal osteoma is histologically benign and slow growing neoplasm, but becomes aggressive with association of presence of mucocele.[5]

The frequencies of sinus mucocele localizations in adults are: frontal sinus (28.3-65%),

frontoethmoid sinuses (14-26.7%), ethmoid sinus (6-30%), maxillary sinus (3-21.7%), and sphenoid sinus (1-6.7%).[6] In very young children, paranasal sinus mucocele mainly form in ethmoid sinus due to lack of development of other sinuses in the early developmental stage. The locations of dehiscent of orbital walls from paranasal pathology include the following: 1. Trochlear fossa; 2. Behind supraorbital notch; 3. Junction of middle and outer third of orbital floor; 4. Roof of maxillary sinus; 5. Anterior 1/3 and 2/3 of os planum; 6. Posterior ethmoid wall. Classification of orbital complications of lesions from paranasal sinus inflammation can be classified into four classes as follows: 1. Symptomatic changes in the orbit; 2. Encroachment of orbit; 3. Sphenoid fissure syndrome/orbital apex; 4. Subperiosteal abscess; 5. Cavernous sinus thrombosis orbital type.[7]

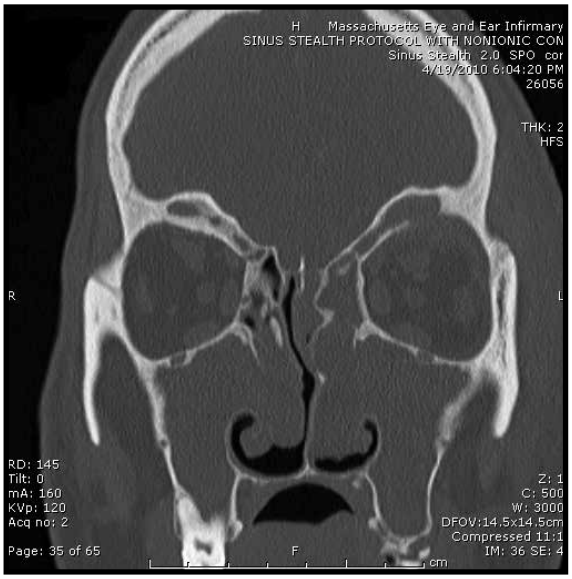

Figure 2: *Left orbital roof erosion from left frontal sinus mucocele and extensive pan-sinusitis. CT Coronal view, bone window.*

The microbiology of mucopyoceles has been rarely studied. In two large studies, the predominant organisms found in mucopyoceles were anaerobe. Cultures of a mucopyocele usually yield polymicrobial growth. A histological analysis series showed that mucocele cultures were sterile (48.5%), and of those with a positive result, staphylococcus was the most common pathogen (30.3%). Two other studies found that the most common bacteria causing mucopyoceles were *Peptostreptococcus (27.5%), Microaerophilic streptococcus (6.6%),* and *Prevotella melaninogenica* (6.6%).[8]

CT and MRI are the methods of choice for diagnosing mucoceles of the paranasal sinuses and are of major importance for the treatment plan. CT was more sensitive in determining bone erosions, while MRI had the advantage of multiplanar imaging and was much more sensitive for differentiating mucocele from a tumor on the basis of MR signal intensity characteristics. CT scans displayed mucoceles as non-enhancing soft tissue density lesions, generally isodense to the brain parenchyma, expanding the sinuses in most cases, eroding adjacent bones and extending intraorbitally or intracranially.[9] The variable content and degree of hydration of mucocele also affect imaging appearance, ranging from near water density to hyperdense. Majority of simple mucocoeles are formed by clear thick mucous. The content of pyomucoele is purulent. Radiographically, it can be difficult to differentiate sinusitis, especially chronic sinusitis, from mucocele or pyomucocele. Characteristics of acute sinusitis on CT include peripheral mucosal thickening, air/fluid level, airbubbles within the fluid and obstruction of osteomeatal complexes. Definitive diagnosis of paranasal mucocele is ultimately done by surgical exploration.

Management of mucocele and mucopyocele are primarily surgical drainage, resection, or obliteration of sinus space, depending on the location and structures involved. The surgical techniques involved have evolved overtime. Previously, surgical therapy for frontoethmoidal mucoceles involved an external approach (Lynch-Howarth frontoeth- moidectomy) or osteoplastic flaps with sinus cavity obliteration. Currently, endoscopic marsupialization has become the preferred surgical approach over obliterative procedure for treatment of paranasal sinus mucoceles. Long-term post-surgery follow-up is very important due to the possibility of recurrence.[3]

While orbital congestion and chronic sinusitis are common presentation of symptomatic mucocele, it is rare for a mucocele to manifest as a cutaneous draining upper eyelid abscess. A review of the literature revealed two similar presentations of frontoethmoid mucocele. In 2005 Casady described a 65-year-old male with ipsilateral frontal and ethmoidal mucocele, which eroded through frontal sinus wall causing spontaneous drainage of the upper eyelid. This patient presented with a 1-week history of left upper eyelid swelling, mild frontal headaches, and chronic yellow nasal discharge, with no preceding trauma or change in vision.[10] In 2006, Herndon reported 1 case of a cutaneous fistula with no specification of the exact cutaneous draining site in relation to the upper eyelid, onset of symptoms, or prior medical history.[3]

In summary, diagnosis of sinus mucocele requires a high degree of clinical suspicion and adequate imaging. It may present with a long average asymptomatic time interval and, as demonstrated in this case, present with atypical symptoms. An initial presentation of a small draining site can mask the extensive orbital cellulitis and asymptomatic mucopyocele. Sinus mucoceles should be treated promptly to prevent irreversible complications such as meningitis, orbital cellulitis, sepsis, and optic neuropathy.

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Quality Improvement is Unique in Arkansas Nursing Homes

BY BETTY BENNETT, RN, and KIMBERLY TACKETT, LNHA

Arkansas is unique in the nation in its positive approach to enhancing both the quality of care and quality of life for its Medicaid-eligible nursing home residents. The Arkansas Innovative Performance Program (AIPP) works with the state's 226 nursing homes to improve clinical outcomes, enhance facility safety and reduce survey report deficiencies.

AIPP, a division of the health improvement organization Arkansas Foundation for Medical Care (AFMC), operates on both statewide and facility-specific levels by providing industry-wide education, tools and instruction to nursing homes, and assisting nursing home direct-care staff, administration and organization leaders to identify areas where changes or enhanced systems are needed to meet the home's goals and objectives.

The 12-member AIPP team includes registered nurses, licensed practical nurses, certified nursing assistants (CNAs) and long-term care administrators. They provide assistance to about 75 percent of Arkansas' Medicaid-eligible nursing homes on a regular basis and serve every home in Arkansas in some capacity.

HOW IT DEVELOPED

A key part of AIPP's success is its initial leadership and grassroots development. More than 10 years ago, Roy Jeffus, then director of the Arkansas' Division of Medical Services (DMS) and Carol Shockley, director of the Office of Long Term Care (OLTC), envisioned an outreach program that could provide targeted training and quality consultation directly to Medicaid nursing homes. They wanted quality improvement to focus on positive consultation and training rather than deficiencies. The OLTC, the Centers for Medicare and Medicaid Services (CMS) and the Arkansas Healthcare Association were all key to AIPP's development and success.

HOW IT WORKS

Key benefits that the AIPP team can offer a Medicaid-eligible nursing home include understanding and interpreting survey reports, providing tools targeted to specific deficiencies, individualized training and direct communication, facilitating peer interaction and on-site visits. Participation in AIPP is voluntary, confidential and there is no cost to the facility for these services.

The Arkansas Department of Human Services' OLTC conducts an annual standard survey of every nursing home in the state. Survey inspections can also occur at any time as result of a complaint. AIPP receives a copy of all surveys. They analyze the survey findings and trend the data to address specific problems, educate and develop resources for specific areas of improvement. AIPP's regulatory specialists monitor the top 10 deficiencies and offer intensive assistance in addressing regulations and deficiencies. They can respond quickly to unexpected trends. The AIPP team analyzes the root cause of deficiencies and looks for common problems across deficiencies. This results-oriented approach focuses on the system breakdown surrounding an issue, thus improving results in multiple reporting areas.

The frequency of onsite consultation depends on the home's individual needs. Some are visited weekly; others only need a quarterly visit. Requests for consultations come directly from individual nursing homes. The nursing home and its assigned AIPP quality specialist determine the home's training needs.

The tools that AIPP develops from survey inspection trending become training topics for regional training workshops, conference calls and onsite in-service trainings. These tools are available on the website at **aipp.afmc.org**.

AIPP's methods are wide ranging and can include:

- On-site consultation, monitoring and training
- Telephone consultations and conference calls
- Regional training workshops
- CNA skills fairs
- Video training resources
- Analysis of survey reports to make them more meaningful for each facility
- Facility-specific plans to correct survey deficiencies
- Intensive assistance for regulatory compliance
- Development of resources and tools based on best practices

In addition to developing tools and resources at the state level, AIPP uses the tools provided by national quality-improvement initiatives, including the Advancing Excellence Campaign, the CMS' initiative to improve dementia care through the reduction of anti-psychotic medication use and the American Health Care Association's quality initiatives.

INDIVIDUALIZED QUALITY IMPROVEMENT

AIPP reviews a set of quality measures from the Minimum Data Set (MDS) that describe the quality of care provided in nursing homes. The MDS provides a comprehensive assessment of each resident's functional capabilities and helps nursing home staff develop a care plan. Quality improvement is closely tied to the accuracy of the MDS. With the appropriate system in place, nursing homes can use the quality measures to review and improve residents' quality of the care.

AIPP provides regular phone contact with MDS coordinators and staff on MDS-related topics and regulatory issues. Education and mentoring of the MDS assessment is an ongoing topic that the team addresses regularly, both onsite and in group settings.

The direct care role of the CNA is critical to the individualized care provided to residents. Each year, AIPP focuses one of its statewide training workshops on a CNA-related topic. The team provides on-site assistance to CNAs and promotes a train-the-trainer program to enhance CNA proficiency, build confidence and develop peer leaders.

AIPP creates process indicators based on trends of deficiencies or other quality concerns. A process indicator is a two-part, best-practice method. First, nurse educators make an educational presentation. Then they develop a tool to prevent reoccurrence of the identified deficiency.

An advisory board of professionals and industry stakeholders meets regularly to review and accept newly identified process indicators. The specific steps for each process indicator are developed using sources such as federal nursing home regulations, CMS' guidelines and nursing standards of practice.

SPECIALIZED TRAINING

Individually targeted and frequent training opportunities are available to all Medicaid-eligible nursing homes. In addition to the two educational conference calls offered each month to every home, a minimum of 21 regional training workshops are available in multiple Arkansas cities every year. Conference calls, workshop discussions and survey analysis help generate workshop topics.

AIPP hosts national speakers in Arkansas three times a year to keep the long-term care profession informed of national developments, trends and best practices. Using the national speakers' tools, AIPP distributes the information and knowledge even further via onsite in-service and regional training.

In addition to quality improvement education, training is available on team building, role definition, goal setting, data collection, performance monitoring, survey maximization, quality improvement and management analysis, clinical education and care management updates. This multi-pronged approach helps sustain a quality-improvement environment and helps staff proactively implement best practices.

CULTURE CHANGE

Culture change is the popular term for resident-centered care, in a family home-like environment, that encourages residents to have more influence in decisions about their care and daily lives. It is an alternative environment to the traditional institutional focus where management controls decision making, not the resident.

AIPP is working directly with a group of nursing homes and assisted living homes across the state to help them understand and embrace culture change. Tools and resources continue to be developed to help traditional homes become more resident focused. A culture change blog, **www.arkansasculturechange.com**, is available as a learning tool and for peers to share best practices.

AIPP marks its 10th year of paving the way for a universal educational message in the form of workshops, resources and monthly conference calls that are shared by providers, regulators and stakeholders. Acting as a mentor and a mediator to promote unity and sharing of resources, AIPP is a valuable asset to the state's long-term care profession. ▲

Ms. Bennett is director of AIPP and Ms. Tackett is manager of quality programs, both with the Arkansas Foundation for Medical Care.

Disconnective Hemispherotomy for Medically Intractable Status Epilepticus in an 8-Year-Old Child

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ABSTRACT

We report here the unusual case of an 8-year-old child with left hemispheric focal epilepsy secondary to a perinatal infarction who presented with new onset absence seizures and eventual nonconvulsive status epilepticus that was refractory to medical management. Following review at our multidisciplinary Epilepsy Surgery conference, the patient underwent disconnective surgical hemispherotomy with immediate cessation of his seizures, and has remained seizure-free at 4 months following surgery. In this context, we present here an overview of hemispherectomy and related procedures, including peri-insular disconnective hemispherotomy, and we discuss the efficacy of surgery for challenging hemispheric epilepsies.

BACKGROUND

Status epilepticus, a life-threatening neurological condition characterized by an acute, prolonged, uncontrolled epileptic crisis is a challenging clinical situation. Although it may develop in the context of varying etiologies and disease states, pediatric patients with structural brain malformations and lateralizing, refractory seizure events (as recorded on electroencephalography, or EEG), pose a unique subset of patients for whom surgical intervention has been proven successful, when all means of medical management have been exhausted. One of the more commonly noted procedures in this group, in fact, is hemispherectomy.

Hemispherectomy has traditionally been reserved for persistent seizure activity in the setting of unilateral cerebral damage, when anatomical (via MRI) and/or electrophysiological studies (via non-invasive, and occasionally, invasive EEG recordings) lateralize and localize the onset of epileptic seizures to one cerebral hemisphere. The introduction of the surgical technique was made by Walter Dandy in 1928, who published his experience with five patients afflicted with right-hemispheric gliomas undergoing removal of the cerebral hemisphere.[1] Nearly a decade later, Kenneth G. McKenzie was the first to apply hemispherectomy as a resective treatment for epilepsy.[2] Eventually, the procedure was popularized by Roland Krynauw in a case series of 12 epileptic patients with infantile hemiplegia.[3] Initial attempts at 'anatomical hemispherectomy' were aggressive and involved complete resection of the entire cerebral hemisphere, sparing only the diencephalon. Although this procedure remains in use to this day for select patients, modern variants of this procedure have been developed to avoid maximal resection of cerebral tissue and related complications, including hydrocephalus and superficial cerebral hemosiderosis. In 1970, Theodore B. Rasmussen described the first disconnective variant of the procedure, termed 'functional hemispherectomy,' wherein the goal was to reduce the extent of anatomical resection, focusing instead on a surgical disconnection of the epileptogenic cerebral cortex and related white matter tracts relaying pathological epileptic activity from the diseased hemisphere to the healthy one.[4] Another form of this disconnective technique, 'functional hemispherotomy,' was conceived wherein the surgeon works through a small peri-insular opening and thus may spare even more anatomical tissue while performing the disconnection.[5,6] Although multiple variations of the same procedure have since been developed, they all employ four common disconnective steps: 1) resection of mesial temporal lobe structures; 2) transventricular corpus callosotomy; 3) disconnection of the white matter tracts of the internal capsule, corona radiata, and horizontal fronto-basal fibers; and 4) insular disconnection.[7] The most recent adaptation of this technique is the modified peri-insular functional hemispherotomy.[8] Despite technical modifications of the original hemispherectomy procedure, these procedures continue to yield excellent results, offering seizure-free rates as high as 63% at 5 years and beyond.[9] In this context, we present here a case report of an 8-year-old male patient successfully treated with modified peri-insular functional hemispherotomy for active, refractory status epilepticus.

CASE REPORT

An 8-year-old male patient presented with epileptic seizures, cerebral palsy and developmental delay, in the context of a left-sided perinatal MCA stroke sustained in utero. The patient had a history of focal seizures but was recently found to have continuous spike-wave activities during sleep. At baseline, his exam revealed mild right-sided weakness, most notably in the hand/arm. At the time of presentation, his seizures were increasingly more frequent, and his family reported developmental regression for greater than one year thought to be secondary to his continuous spike-wave activities during sleep. He was admitted for video-EEG monitoring in the Epilepsy Monitoring Unit at Arkansas Children's Hospital to investigate further. His seizure semiology at this time was characterized by multiple daily occurrences of behavioral arrest with repetitive eye blinking. In hospital, he remained refractory to multiple anti-epileptic medications and developed nonconvulsive status epilepticus with limited responsiveness and inability to speak or eat. Video-EEG recordings confirmed persistent left hemispheric, as well as bilateral, spike-wave activity. MR imaging revealed an extensive encephalomalacia in the left fronto-temporo-parietal region. Despite ongoing efforts at medical management including intravenous lorazepam, valproate and levetiracetam, combined with midazolam and propofol infusions, the patient's EEG showed persistent seizure activity over the ensuing week. Mechanical ventilation was required and he developed complications that included hypotension and atelectasis. His case was discussed at our multi-

disciplinary Epilepsy Surgery conference (conjoint between the University of Arkansas for Medical Sciences, UAMS, and the Arkansas Children's Hospital, ACH), and the unanimous consensus was to offer left-sided disconnective hemispherotomy as a surgical option. A discussion was held with the patient's family concerning risks and benefits of the procedure. Potential risks included, amongst others, a low risk for infection, bleeding (possibly requiring transfusion), neurological compromise (including post-operative hydrocephalus), failure to control seizure activity (possibly necessitating a second subsequent procedure, i.e. anatomical hemispherectomy), standard anesthetic risks and a very remote risk of intra-operative death. The parents gave informed consent for the procedure, and the patient was taken to the operating room (OR) 12 days after initial admission to hospital.

Once he was brought to the OR, the patient was placed under general anesthesia. Intraoperative scalp EEG monitoring was utilized throughout the procedure over the right (i.e. normal) hemisphere and revealed contralateral, continuous spike-wave activity at the onset of the recording. The patient's head was shaved, prepped and draped, and a large T-shaped incision was made on the left side; this was followed by a generous craniotomy. The dura was opened and an extensive region consistent with encephalomalacia in the fronto-temporo-parietal lobes was identified. A temporal lobectomy was performed, resecting back to 6.5 centimeters from the temporal pole to encompass the abnormally dysplastic (atrophic) tissue therein, followed by resection of the mesial temporal lobe structures (i.e. parahippocampal gyrus, hippocampus and amygdala). Next, a suprainsular window was made to permit access into the left lateral ventricle, at which time the transventricular corpus callosotomy was completed, taking great care to disconnect the white matter fibers of the internal capsule and corona radiata (including the fronto-basal fibers), thereby disconnecting the cerebral cortex from the diencephalon underneath. Finally, a small amount of dysplastic tissue in the insular region was also resected. Particularly encouraging during the procedure, the patient's EEG over the contralateral (right) hemisphere showed dramatic improvement after the corpus callosotomy was completed with immediate cessation of the spike-wave activity or seizure discharge. This confirmed successful isolation of the abnormal epileptic discharges preventing transmission from the diseased left hemisphere. Once the disconnection was complete, hemostasis was achieved, the dura was closed, the bone flap was re-implanted, and the wound was sutured in primary fashion. The patient was taken to ICU in stable condition for further observation.

Over the following week, he improved and was extubated. He followed commands and began to verbalize, increasingly more with each passing day, with no detectable EEG evidence for ongoing seizures. The electrodes over the left hemisphere revealed greatly diminished epileptiform activity that did not spread to the contralateral hemisphere. His neurologic exam revealed no new deficits, and he was referred for rehabilitation in stable condition. He also quickly began having developmental improvement with cognitive gains that had been lost over the previous year. Several weeks later, the patient was discharged home and has continued to remain seizure-free 4 months later. His primary care physician, neurologists and neurosurgeons continue to follow his progress, and are particularly watchful for the slim possibility of seizure recurrence and/or hydrocephalus.

DISCUSSION

Hemispherectomy has evolved over the past 85 years from a purely anatomical resection to a more focused disconnective procedure, as was performed in this patient. Outcomes continue to remain excellent, achieving seizure-free rates in over 60% at 5 years follow-up.[9] Of note, the morbidity and mortality associated with the procedure remains low, making it a safe and effective surgical option for properly screened pediatric patients with hemispheric epilepsy (i.e. in the context of hemimegalencephaly, perinatal infarct, Rasmussen's encephalitis, extensive cortical dysplasias, etc).

Although we describe here a successful outcome with hemispherotomy for this pediatric patient with catastrophic epilepsy, it should be more generally noted that surgery has become increasingly safe and effective in managing different kinds of medically intractable epilepsies. In large part, this is due to improved imaging techniques, novel advances in invasive EEG monitoring for identifying deep epileptic foci, and improved surgical methods for resection or disconnection. As per the current *International League Against Epilepsy*'s guidelines, it has now become appropriate to refer refractory epilepsy patients who fail as few as two anti-epileptic medications to an epilepsy center for formal investigation, including presurgical evaluation in appropriately selected candidates. Surgical treatment has been shown to offer the greatest chance for seizure freedom and the best outcome in appropriately selected cases. Of note, the single most important factor in the overall surgical workup for epilepsy patients is that it be directed by a multidisciplinary team of specialists. Our new Epilepsy Surgery program at UAMS/ACH now includes a comprehensive group of adult and pediatric specialists in the fields of neurology, neurosurgery, neuroradiology and neuropsychology, offering a much-needed resource to epilepsy patients and their families.

FOOTNOTE

According to the 2012 report from the American Journal of Pediatrics, the prevalence rate of epilepsy per 1,000 between 0-5 years is 6.3 (0.63%), or approximately 1,436 children; between 6-11 years, it is 10.3 (1.03%), or approximately 2,348 children; finally, between 12-17 years it is 14 (1.4%), or approximately 3,197 children.[10] Considering that there are approximately 38,000 live births in Arkansas every year, this translates into nearly 7,000 Arkansan children with epilepsy below the age of 18 years old. Overall, seizures remain uncontrolled in about 20%, suggesting that approximately 1,400 children continue to experience uncontrolled seizures. There should now be a growing interest in the potential for surgical therapy in more of these children.

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Budd-Chiari Syndrome in a patient with Multiple Hypercoagulopathies

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ABSTRACT

OBJECTIVE: To describe a patient with Budd-Chiari syndrome (BCS) found to have multiple hypercoagulopathies. CASE SUMMARY: A 33-year-old man who presented with abdominal distension, hematemesis, shortness of breath was found to have liver cirrhosis, portal hypertension and Budd-Chiari Syndrome. He was evaluated for hypercoagulability and was found to be heterozygous for Factor V Leiden mutation and his protein C level was 38% of normal. He was started on oral anticoagulation and underwent elective liver transplantation within 3 months of diagnosis. DISCUSSION: In patients with Budd-Chiari syndrome, factor V Leiden is the second most commonly identified prothrombotic state after primary myeloproliferative disorders. There may be a coexistence of several thrombophilic states in patients with Budd–Chiari Syndrome. CONCLUSIONS: Budd–Chiari syndrome is an uncommon disorder. Outcome is poor in many cases. Therefore, a successful diagnostic and therapeutic approach is of vital importance. A complete thrombophilia screening needs to be requested in all patients diagnosed with Budd-Chiari syndrome. Thorough investigation needs to be performed to identify an underlying process contributing to the hepatic venous outflow obstruction.

INTRODUCTION

Budd-Chiari syndrome (BCS) is a rare disorder that results from occlusion of the hepatic venous outflow tract independent of the level or the mechanism of obstruction, leading to sinusoidal congestion, and ischemic injury to liver cells[1]. The main mechanism of obstruction is thrombosis of hepatic veins and/or terminal portion of the inferior vena cava with/without portal hypertension. Thrombosis at these sites usually occurs in association with various prothrombotic disorders, including primary myeloproliferative disorders, inherited hypercoagulopathies, antiphospholipid syndrome, pregnancy and oral contraceptive use. Malignancies can play a role in the etiology of BCS not only by direct compression or invasion of vascular structures but also by the associated hypercoagulable state. The presence of multiple thrombotic risk factors in the same patient is being increasingly recognized[2]. However, in about 20% of patients, an underlying disorder cannot be identified[3]. Patients with BCS may present with abdominal pain, abdominal distension, jaundice, lower extremity edema and/or gastrointestinal bleeding[4].

CASE REPORT

Patient is a 33-year-old male with end-stage liver disease, liver cirrhosis, portal hypertension complicated recently with esophageal varices and upper GI bleeding was admitted to our service for gradually worsening abdominal distension. He reported some breathing difficulty when he is supine. He denied any fever, nausea or vomiting. He had no other symptomatology.

The patient was sick 15 days prior to this admission when he had sudden onset hematemesis and melena while on vacation. This was evaluated with esophago gastro duodenoscopy (EGD) and worked up in an outside hospital that showed liver disease and esophageal varices. He needed blood transfusion and banding during that admission. At the same time he also developed massive ascites needing paracentesis and he was also encephalopathic. He was started on Lasix, Spironolactone, nadolol, Lactulose and Prilosec. Past medical history was unremarkable and review of systems was negative except for mild shortness of breath. He was overweight. He had plastic surgery 8 years ago and his current body mass index was around 35. He has no drinking history, no drug abuse history and no smoking history. He is an operational nurse. He is married and has 4 kids. On physical exam, he was alert, followed commands. He had very mild jaundice. Pupils were equal and reactive to light.

Neck is soft with no jugulovenous distention, no thyromegaly. There was no spider angioma on the neck and chest. Lungs were clear and heart rate was normal and rhythm was regular on auscultation. Soft, obese abdomen, liver and spleen were not easily palpable. Abdomen was non-tender but with minimal distension. Bowel sounds were normal. Lower extremities had 1+ edema. Vital Signs measured showed weight of 261 pounds, BMI of 34.6, heart rate of 72 beats/min and blood pressure of 122/55mm Hg. Pulse oximetry was 99 percent on room air.

This admission, he had extensive workup including repeat EGD, multiple labs and imaging studies. Laboratory workup included total bilirubin of 1.3mg/dL, albumin 2.3g/dL, alkaline phosphatase 136 IU/L, aspartate transaminase 44 IU/L, alanine transaminase 43IU/L, gamma glutaryl transferase 73 IU/L, lactate dehydrogenase 279 IU/L. International normalized ratio was 1.6. ANA, blood ammonia levels, ceruloplasmin, alpha feto-protein, CA19-9, CEA, F-actin, CMV, EBV, and other antibodies were negative. Alpha 1-antitrypsin levels were elevated at 282. HIV, viral hepatitis panel, TB and fungal studies were negative. Interventional radiology was consulted who performed a diagnostic and therapeutic paracentesis and removed 7 liters after which patient felt better. All studies on the ascitic

fluid were unremarkable. Cytology of peritoneal fluid was negative for infection and malignancy. Ultrasound liver with Dopplers was performed which showed ascites, splenomegaly, liver cirrhosis and absence of right hepatic vein. This was followed by computed tomography (CT) abdomen, which showed right and middle hepatic vein thrombosis. MRI abdomen confirmed the CT findings and also found a subtle thrombus in the inferior vena cava close to caudate lobe of liver. Gastroenterology and Hematology teams were consulted. Liver biopsy was done which showed cirrhosis and hepatic venous outflow obstruction.

Hematology team had ordered an extensive workup for possible hypercoagulable state. Antithrombin III activity was 61%, protein C activity was 38%, protein S activity was 79%, homocysteine levels were 6.6 uMol/L, APC resistance ratio was 1.66 and he was found to have Factor V Leiden mutation. Lupus anticoagulant panel was normal. Hematology team recommended enoxaparin and declined coumadin usage in this patient with liver disease and esophageal varices. He was discharged home on a sodium-restricted diet. He followed up in the Gastroenterology clinic and Hematology clinic as outpatient. He was also seen in our clinic to establish with a primary care physician and for follow-up care. He was then referred to the liver transplant clinic and underwent extensive workup and had multiple referrals to be evaluated for a transplant. Three months from his initial admission, he successfully underwent liver transplantation and has been started on Coumadin for anticoagulation. He is continuing to follow with Hematology clinic for his multiple hypercoagulopathies, gastroenterology and transplant clinic in addition to our primary care clinic. His current list of medications includes tacrolimus, metoprolol, Coumadin, amlodipine, loperamide, temazepam. He has no complications or side effects 24 months since the transplant and has not required any other intervention during this period.

DISCUSSION

Budd-Chiari syndrome is a result of obstruction of the hepatic venous outflow tract.

BCS is characterized by hepatomegaly, manifestations of portal hypertension, and sometimes rapidly deteriorating liver function. Factor V Leiden mutation is to date the most frequent cause of hereditary thrombophilia[5]. At least one of the inherited prothrombotic risk factors investigated (factor V Leiden mutation, prothrombin gene mutation, and protein C, protein S, or antithrombin deficiency) was present in approximately one third of the Budd-Chiari syndrome population[6].

Janssen et al described the coexistence of several thrombophilic states in about one fourth of patients in their study[7]. Several patients even had four thrombotic risk factors of either acquired or inherited origin[8]. On anticoagulation alone, some patients with an acute presentation may recover spontaneously, at least partially, as judged from a rapid decrease in serum aminotransferase levels, disappearance or easy control of ascites, and improvement in liver function. The findings from the study by Deltenre et al indicate that factor V Leiden mutation alone may not be sufficient to cause hepatic vein or inferior vena cava thrombosis. The mutation could act to exacerbate the thrombogenic potential of the other factors[9].

Symptomatic BCS has very poor prognosis if untreated. Treatment goals for BCS include (1) preventing the propagation of the clot, (2) restoring patency of thrombosed veins, (3) decompressing the congested liver, (4) treating the detected underlying cause and/or (5) preventing and managing complications. This includes medical management and the relief of hepatic venous outflow tract obstruction in order to prevent necrosis, with liver transplantation in selected patients, especially those with fulminant hepatic failure. The indications for transplantation include fulminant hepatic failure, cirrhosis, and the failure of a portosystemic shunt, provided that the underlying disease is associated with a favorable long-term prognosis.

CONCLUSIONS

Four times out of five, an underlying disorder is identifiable in patients with BCS. As more and more conditions are being recognized as factors predisposing to BCS, this number may increase over time. In practical terms, there is a definitive need to investigate for etiologic factors when a diagnosis of BCS is made. The work-up should include hepatic imaging and evaluation for immunologic, thrombotic and inflammatory disorders. More than one prothrombotic factor is being identified in several patients. Factor V Leiden mutation is likely to be present in almost one third of patients with Budd-Chiari syndrome, usually in association with another prothrombotic state. Factor V Leiden alone appears to be a weak thrombophilic factor and seems to exert its thrombogenic effect mainly when combined with other prothrombotic factors, which is the most likely case in our patient as well. For appropriate risk assessment, even in the presence of an overt thrombotic risk factor, physicians should request complete thrombophilia screening for patients with BCS. The need for a team-based approach for the diagnosis and management of Budd-Chiari syndrome, with the participation of a hepatologist, a hematologist, an interventional radiologist, and a surgeon along with the primary care physician, cannot be overemphasized.

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OBITUARIES

JAMES HOWARD ABRAHAM II, MD, 85, of Little Rock, died July 29, 2015. Dr. Abraham attended Hendrix College in Conway, Ark. graduating in 1951. He then attended the University of Arkansas Medical School where he graduated with honors. He was a captain in the Army and served in the Medical Corp in Germany from 1955 through 1957. Upon his return to Little Rock, he completed his residency in internal medicine and a fellowship in gastroenterology.

In 1961, Jim joined Drs. George Mitchell, Bill Ross and Sexton Lewis to found the Little Rock Diagnostic Clinic, where he practiced until his retirement in 1996. He is survived by his wife, Michele, and her son Bradley; his children, Dr. Dana Carol Abraham, Dr. James Howard Abraham III (Patty), and Dr. Robert Lucien Abraham (Ashley). Dr. Abraham was a member of the Arkansas Medical Society and of the Fifty Year Club.

George James Fotioo, MD, 95, passed away June 30, 2015. Dr. Fotioo graduated from Arkansas State Teachers College in Conway, Ark. and the University of Arkansas for Medical Sciences. After medical school, he was stationed in Germany where he served as a captain in the U.S. Army Medical Corps for two years during World War II. Dr. Fotioo served as a physician in Hot Springs for 55 years. He began his practice in the Medical Arts Building in 1945 and was the last physician to vacate the building in 1991. He was very active in the Hot Springs and medical communities, serving on staff at Ouachita Memorial and St. Joseph's hospitals and as a member of the American Medical Society, Southern Medical Society, Garland County Medical Society, and he was a member of the Fifty Year Club of the AMS. He is survived by his three children, Jim Fotioo (Janet), Gina Messersmith (Dan), and Pete Fotioo, along with several grandchildren and great-grandchildren.

Layne E. Carson, MD 95, of Staples, Minn. passed away June 16, 2015 at Lakewood Health System Hospital in Staples, Minn. He was educated in Wynne and went on to the University of Tennesee Medical School in Memphis, graduating in 1943. He served in the US Army during WWII in the European Theater. After his honorable discharge, he went into private practice in Wynne, AR. He returned to the military again serving from 1949-1958. He had a family practice in Homestake Mining Company in Lead, S.D., then retired and worked in primary care at the VA Hospital in Little Rock, AR. Layne retired and lived in Little Rock until 2012. Layne is survived by his daughter, Holly (Marc) DeBow of Staples, Minn; two grandchildren; three great grandchildren. He was a member of the Arkansas Medical Society and the Fifty Year Club.

Lowell Orson Harris, MD, passed away August 8, 2015. Dr. Harris is survived by his wife, Charlene Harris and his sons Wade Harris (Debbe), Mark Harris, Dick Harris (Barbara) and Stan Harris (Betty) along with 11 grandchildren and 6 great-grandchildren. Dr. Harris graduated from the University of Arkansas School of Medicine in 1956. He did his medical residency at St. Vincent Hospital in Little Rock in 1956. He practiced medicine in Hope in 1956 and served in the United States Army Medical Corps from 1957 to 1960. He was medical director of a hospital in Igloo, S.D. While in the army with the rank of captain. He practiced general medicine again in Hope from 1960 through 1999. He was a member of the Arkansas Medical Society and the Fifty Year Club. AMS

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