

■ Lion Heart: Saleh Khalef



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The following e-mail initiated the incredible journey of Saleh Khalef, a young Iraqi boy whose courage earned him the nickname “Essed” (Arabic for “Lion Heart”) and who touched the lives of hundreds of people from an Air Force base in southern Iraq to a compassionate community in northern California. Saleh’s story demonstrates what is possible when surgeons work together, be they military or civilian surgeons, trauma or pediatric surgeons, located in a modern pediatric hospital or in a tent in the desert. Saleh’s story is a reminder of what a privilege it is to be a surgeon with the skills to save a life.

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*E-mail from Dr. Johannigman to Dr. Knudson,
19 October 2003:*

From: Jay A. Johannigman
To: Peggy Knudson, MD
Subject: Saleh

Dr. Knudson,

I need your pediatric trauma expertise. Yesterday afternoon we were called by our outside perimeter gate and told that there was a Red Crescent vehicle with a child in it. When we got out there, we found a desperately ill child who had picked up a land mine eight days ago and it exploded, maiming him and killing his brother. The civilian hospital in Nasiriya apparently explored his abdomen and found liver lacerations, greater curve of the stomach lacerations, and descending colon injuries.

We transported him back to our facility with flies clinging to all of his dressings, which were purulent and had obviously not been changed in days. When I opened his abdominal dressing, his entire anterior abdominal wall was gone from necrotizing gangrene secondary to the blast effect, and there is evisceration of small bowel. We took him to the OR and I was able to mobilize his small bowel into a central position and repaired a few obvious serosal spot injuries from shrapnel. The right upper quadrant had a large purulent

biloma from his suture hepatorrhaphy and I found a missed antral injury. His greater curvature was socked into his colon with what appeared to be O-silk sutures to repair the stomach. The descending colostomy was viable. We had to resect his abdominal wall out laterally to put him into an IV irrigation bag for a silo.

I was able to manually place a Dobhoff feeding tube across the pylorus and into the jejunum. We also took down the right hand dressing and were staring at the distal radius necrotic, dried out and purulent. We revised that to a formal mid forearm with our orthopaedic surgeon. The left hand has no fingers left, only a partial thumb. His left eye had a tarsorrhaphy and the globe is blown and necrotic. I have never seen anything like this. We debrided the O-ethibond sutures used to close his facial wounds and took him to the ICU. We made it through the night and he is extubated and talking to his father. I am going to take him back for a second washout tomorrow

Any words of wisdom? Say some prayers!

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Saleh and his 16-year-old brother, Dia, lived in the small town of Bada’a, north of Nasiriya, Iraq. His father, Raheem, drove a taxi for a living while his mother, Hadia, cared for the family’s three young children. Saleh and Dia were just returning to their school, which had been closed for seven months while it was occupied by Sunni militants who were holed up there. On the way home from that first day of school, Saleh picked up what he thought was a ball, but then began to cry as he realized what it was. His brother Dia ran to his side, but before he could grab the device from Saleh, it exploded. Saleh was rendered unconscious, his abdomen torn open, his right hand gone, and a piece of shrapnel torn through his left eye, lodging in his brain. Dia was missing much of his right thigh and had shrapnel lodged in his neck. He was still conscious and was rushed by car to Saddam Hussein Hospital in Nasiriya, where he bled to death. The younger boy was rushed to a small hospital closer to the scene, but later transferred to the larger hospital in Nasiriya, 40 miles away. It soon became clear, however, that even that hospital lacked the facilities and the expertise to care for such severe injuries. The physicians provided

Overleaf: Saleh in the ICU at Tallil.

basic care but informed Saleh's parents that his only hope of survival would be in the hands of the American physicians.

The next day, Raheem drove to Tallil Air Base and begged the medical personnel to accept Saleh in transfer. Eventually, the young child was presented to Dr. Johannigman, who was deployed to Tallil Air Base during Operation Iraqi Freedom. Dr. Johannigman is the chief of trauma at the University of Cincinnati, the Chair of the Committee on Trauma for the State of Ohio, and a reservist in the Air Force. Dr. Johannigman and his fellow surgeons at Tallil performed the initial surgery on Saleh and then undertook the formidable task of attempting to provide intensive care support in a makeshift hospital that was in the desert sand.

E-mail from Dr. Johannigman to Dr. Knudson, 21 October 2003:

From: Jay A. Johannigman
To: Peggy Knudson, MD
Subject: Saleh, Part II

I am feeling pretty bad right now. Saleh had a major upper gastrointestinal bleed and we had to reoperate. We found a classic perforated duodenal ulcer at his previous repair of the anterior wall of the stomach and found both a leak and the site of arterial hemorrhage, which had been responsible for the bleeding. We transfused him four units of blood, a major amount for a 20 kg kid. We almost lost him. Once again, he extubated easily and is back in the silo. His pulse is down to 120 and he is awake and oriented, talking to us and pleading in Arabic for water. He has the heart of a lion! (The Arabic name for lion is Essed.)

We held a prayer service for him and several soldiers touched his head as they prayed. His father and I have become very close and I am reminded of my own son at home, who is the same age as Saleh. Keep your fingers crossed.

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Despite the complications and the need for repeated trips to the operating room, Saleh continued to thrive. Someone managed to track down some cans of Ensure, so Saleh was able to get some



Dr. Johannigman examines the critically injured boy upon his arrival at Tallil Air Base in Iraq.



The open abdominal wound on arrival.



Wounded left hand after initial debridement and pinning.

nutritional support. The orthopaedic surgeon, Eric Fester, MD, worked hard to preserve function in Saleh's remaining hand. However, there was no material to provide any reasonable coverage for his abdomen, thus placing him at risk for continued sepsis and for the development of intestinal fistulae. Dr. Knudson, who had been successful in introducing the wound VAC (KCI, San Antonio, TX) dressing into the San Francisco General Hospital, had some ties with that company's local representatives. She was soon put in contact with Charlie Blitz from KCI's international division, who approved her request to ship the VAC materials over to Iraq. Within 72 hours, Dr. Knudson received the DHL package tracking number and followed the shipment's progress as it left Southampton, UK, for London-Heathrow, then on to Bahrain, and finally to Baghdad.

When a DHL delivery truck arrived full of wound VAC materials on a Sunday, neither Dr. Knudson nor Dr. Johannigman could believe the generosity of the KCI company in donating the machine and all the accompanying dressing materials. Within hours, Saleh's abdomen was covered for the first time with a "real" dressing.

Soon, however, another problem arose. Dr. Johannigman's tour was almost over, and he was concerned for the child's fate once he left. Dr. Knudson called her friend and colleague, James Betts, MD, FACS, the surgeon-in-chief and director of trauma at Children's Hospital, a Level I pediatric trauma center in Oakland, CA. Drs. Betts and Knudson had worked together for many years as part of the ACS Committee on Trauma in northern California. Dr. Betts met with senior administrators from Children's Hospital, who generously agreed to accept the child in transfer if all the physicians who would be caring for Saleh would donate their time, and if the Air Force could arrange transportation. The generosity of the Children's Hospital in Oakland and the expertise of their medical staff opened a door of opportunity that would provide a ray of hope thousands of miles away.

Three weeks after his arrival at Tallil Air Base, young Saleh and his father were loaded onto an Air Force Critical Care Aeromedical Transport unit and were heading to Ramstein Air Base in Germany, for the first leg of a 36-hour plane ride to Children's Hospital in Oakland. The going was not smooth, however, as Saleh was febrile and



Open abdominal wound covered with plastic drape.



Open abdominal wound covered with the VAC dressing.

having difficulty breathing. He was accompanied by Robert Singler, MD, the Air Force anesthesiologist who had worked on him in the temporary operating room in the tent at Tallil.

E-mail from Dr. Singler to Dr. Johannigman, 10 November 2003:

From: Col. Robert Singler
To: Jay A. Johannigman

Saleh has arrived here in Oakland via REACH helicopter from Travis Air Base and is in terrific

hands with Dr. Betts. I have just finished a lengthy and cordial discussion of Saleh's entire course. The care team has plans to do all the things we wish we could have done at Tallil, and he is scheduled for his first operation here tomorrow.

The last leg of the flight was much like those previously, with repeated oxygen desaturation events. A new issue was the first rigor that I had seen, which persisted for 20-30 minutes until Tylenol and the next dose of antibiotics took hold. [Saleh's] Dad is holding up well and wanted me to express his profound gratitude, Jay, for all that you have done. The Iraqi community here (in Oakland) has already established an account and is collecting donations for Saleh's care and to support the family left behind.

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When Dr. Knudson walked into the ICU at Children's Hospital and first saw Saleh, she had to walk out to be sure that his father did not see the shocked look on her face. A veteran trauma surgeon who has cared for numerous seriously injured adults and children at the University of California/San Francisco General Medical Center, Dr. Knudson was not prepared for what she saw: an emaciated, 38-pound child with facial scars; a missing eye, limb, and hand; and a cry that was gut-wrenching. She later learned that Saleh wanted only to "hide under the bed and be left to die" when he first arrived. On many occasions, his father was unable



Loading onto Air Force Medical Air Evacuation Unit for transport to Germany.



Skin-grafted abdomen six weeks after the initial injury.



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Children's Hospital Oakland, two months after injury. Pictured are Dr. Knudson, Saleh's father Raheem, Dr. Johannigman, Saleh, and Dr. Betts.

to console him, and it was clear that he missed his mother.

Quickly, the team of surgeons, headed by Dr. Betts, began their work on Saleh, removing the central line that had made him septic, and replacing it with a clean one for much needed nutrition. A computed tomography scan of his head demonstrated the shrapnel in the brain, and he subsequently developed seizures as a complication. Despite his malnourished state, however, his abdominal wound was clean and was already showing signs of healing under the VAC dressing. A plastic surgeon worked on his ear, face, and remaining hand, while an ophthalmologist performed several operations to prepare his socket for an artificial eye. The ICU team and rehabilitation therapists worked diligently to speed his recovery. In January 2004, Saleh was finally able to be treated as an outpatient, although he and his father lived in



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Reunited with his mother and baby brother in Oakland one year later.



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Saleh riding his bike in Oakland.

housing provided by the hospital on the grounds of Children's Hospital.

One year later, after more than 32 operations, Saleh is able to attend school in Oakland, while his father works in environmental services at Children's Hospital. He has learned English and is able to write and draw with the aid of a prosthetic device. He will require more surgery to close his large abdominal hernia and continues to see Dr. Betts on a regular basis, but for now, he is enjoying the recent arrival of his mother, two younger sisters, and new baby brother, who have been granted political asylum. He continues to serve as a reminder to all of us that through the generosity and expertise of many individuals working together, something can be salvaged from the wreckage of war. ^Ω

Disclaimer

The views expressed in this article are those of the authors and do not necessarily reflect the official policy

or position of the Department of the Air Force or the U.S. government.

Authors' note: *San Francisco Chronicle* newspaper photographer Dianne Fitzmaurice won a Pulitzer Prize in 2005 for her photo essay of the "Lion Heart" story.

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Dr. Johannigman is Colonel, USAFR MC FS, associate professor of surgery and chief, division of trauma and critical care, University of Cincinnati, OH. He is Chair of the Ohio COT.

Dr. Betts is surgeon-in-chief and director of trauma services, Children's Hospital, Oakland, CA, and clinical professor of surgery and urology, University of California, San Francisco.