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The NBA's Medicine Maverick

By Travis Heath

Imagine for a minute an injury that if sustained by an NBA basketball player would sideline him for the majority of the season. Now imagine for a minute if there was a revolutionary new procedure and material which could reduce the recovery time from approximately six months to as little as one or two weeks.

You can stop imagining because thanks to the medical minds of Miami HEAT team surgeon Dr. David Edelman and the medical product manufacturing company Cook Medical, what was once a fantasy has now become reality.

All of this started some 20 years ago when Edelman was a young surgeon exploring revolutionary ways to treat his patients. Around this time he stumbled across a new procedure called laparoscopic or minimal access surgery, which is a procedure that involves making small incisions in the abdomen and conducting an operation through those small holes with the use of high tech video equipment.

Early resistance to such an idea was substantial.

"As I say, 'Welcome to my life,'" explained Edelman with a chuckle. "You've got to picture this. This is 1989. This is almost 20 years ago, and nobody was doing minimal access surgery. No one was doing laparoscopy. I heard about this crazy surgeon in Nashville who was taking gall bladders out through the bellybutton using video equipment. I mean, how bizarre is that? Well, as a crazy young surgeon I went and learned how to do it, and they wanted to take my privileges away, take my license away. They wanted to not allow me to practice medicine in Miami."

Luckily for everyone involved, Edelman was allowed to continue pursuing minimal access surgery. And when all was said and done, that expertise led to a pretty nice gig.

"When the Miami HEAT came into existence they needed a general surgeon, so I was asked to be a part of their medical team," he said. "The reason they invited me is because I had an expertise with minimal access surgery. Over the years working with pro athletes like the Miami HEAT, I've got to meet a lot of different professional athletes in many different fields."

In his early days working with the HEAT, Edelman came in frequent contact with athletes suffering from what's known as a sports hernia, an injury that at the time could sideline players for an entire season.

"With the help of Dr. (Harlan) Selesnick who is the team orthopedist, I've gotten to understand this concept of a sports hernia," Edelman explained. "I've published literature on it and actually seen quite a few professional athletes on a weekly basis for this condition."

Before discussing Edelman's revolutionary treatment of sports hernias, it's important to have an idea of what exactly a hernia is.

"A hernia is a tear in the muscle," Edelman said succinctly. "In most of us normal Joe's it's very common in the groin area. The reason it happens there is that the area in the groin is a weakened area. And most of us normal people will get hernias. It's actually one of the most common operations that I do."

"Now, when you take a professional athlete and have him or her perform these maneuvers at high speeds and put significant strain on the muscle, they get small muscle tears all the time, often in the groin because that's where hernias commonly happen. And when the muscle tears, you get pain in the groin. It's a common area in humans, anyway, that breaks down, and it's very common in athletes. But also because athletes have such great muscles you can't feel it or see it by x-rays or exams. But there is a defect, and you know it's a defect for two reasons: 1) the symptoms they complain to you about and 2) when you start operating, as I do, on these athletes with my telescopes and video equipment you can actually see the muscle tears and the muscle defects that exist."

"So the common Joe who is watching the baseball games, the basketball games, or the football games, many of these people do have hernias. They may or may not go to a doctor for care because it doesn't really interfere with them doing their job or living their life. They may just have a lump there. But if you're making big money and you can't go to work because you're in pain, you can imagine what the GM's, agents, and coaches start saying. You start reading about it in the newspaper that this player is a crybaby or he is always out on injured reserve. It becomes a real issue."

Because of that issue, Edelman was determined to find a way to better treat this relatively common injury in the athletes he worked with.

"Being a minimal access surgeon I developed an interest in treating hernias and doing it laparoscopically -- small incisions, less pain, quicker return to normal activity. I've done thousands of hernia repairs this way."

"But there was this special problem that we had with professional athletes. They get hernias, but the conventional surgeons -- and most surgeons out there -- when you examine a professional athlete you don't feel a hernia on exam. You don't see a hernia by x-ray, though these players and these athletes still complain of pain doing their profession. So it got me interested in reading the literature, and sure enough, you find that in Australia and Europe where they play rugby and soccer there's a huge amount of literature out there on this concept of sports hernias. When you come to a place like the United States where professional athletes are paid a significant amount of money to perform their profession, and if they're unable to do their job because they have pain, there's a problem. So with my interest in hernias and my experience with having a few

of the Miami HEAT players having this condition it just sort of was a natural mix of applying what I could do to help other athletes in different sports besides basketball.

"With the help of Cook, we've come up with this material called Surgisis which is a biologic material that the body recognizes as its own and transforms it into healthy material. So you have a professional athlete with this muscle tear. You can repair that muscle tear with this biologic material, this biologic mesh. You can fix the mesh in place so it doesn't move with some other biologic glues. And within a few weeks you have a professional athlete with no foreign material in his body performing back at his usual exciting level, and he's not having pain."

To better understand this biologic material called Surgisis, Wayne Radford, Product Manager for Cook Surgery (and former University of Indiana and Indiana Pacer basketball player), lent his insight.

"How (Surgisis) came about, you always have to go back and just say Bill Cook," Radford explained. "Purdue University has this technology and some time in the 1980's, Bill Cook met with some of the individuals at Purdue and decided to invest in this technology. And then about 15 or 20 years later after having a lot of lab work done, they decided it was time to bring it to the market. So in 1999 or early 2000 is when Cook decided he wanted to have a sales force so we could go ahead and market his technology to the public.

"They were doing their research with (Surgisis). And during their research, they somehow noticed how the material had an uncanny ability to heal. They did 15 years or more of animal clinical studies to prove that it has the ability to actually regenerate itself."

"It's kind of a neat concept," added Dr. Edelman. "In the past we'd stick foreign bodies, rags, or mesh in the body. In the old days -- which is not that long ago, could be five or ten years ago -- mesh was used and mesh is a piece of rag. Just think about your shirt material, that's what it's made out of. Professional athletes feel that. I mean, that becomes really hard. If you put a piece of mesh in anybody it becomes really hard. But in a professional athlete who can do some really amazing acrobatic maneuvers, they still feel the mesh for quite a few months and are still not able to perform up to their abilities. So what I've been trying to do is use something that's more natural, and that's where this biologic material comes in. It's been exciting to see these professional athletes get back to their normal activities in a pretty quick fashion."

So what exactly is this Surgisis material composed of and when did it first hit the market?

"(Surgisis) is actually made from pig intestine," Edelman said. "They treat it and they remove all of the material on the intestine that even resembles the pig. All that your left with is this matrix that's made of something called collagen, and collagen is the basic building block of the human body. Cook has been able with their engineers to alter what the intestine looks like to make it look like human collagen, which is a normal, natural substance that you find in every organ of the body. You find it in your bones, in your skin, in your own intestines, anything that has any substantial being has collagen in it. The human body recognizes this pig intestine as human tissues and it builds onto it. So if you put this collagen

against a muscle in the groin, what does it become... a muscle in the groin because all of a sudden you've put this matrix, this building material, on a tear and the body says let's heal it. Let's just put some normal muscle there because there's this building block that has been placed. It's kind of a neat concept, and it works.

"Surgisis came out on the market about nine years ago. It was about that time when this concept of sports hernias was also hitting the literature. So I had Cook Surgical coming to me with this biologic material and it just so happened I had a pro athlete sitting in my office like the day before with this sports hernia which I wasn't very familiar with. I started doing the research on the sports hernia at the same time the biologics appeared in my office. And then you put two and two together and all of sudden the light bulbs go off. It was very coincidental, and it made sense. It just made theoretical sense to try this on a professional athlete who I felt it would work on. I didn't try it on a professional athlete first. I mean, I spoke to a regular patient. I tried in on a regular Joe and it worked really well."

As it turned out, laparoscopic surgery and Surgisis were a match made in heaven and provided NBA players with just the kind of expedited recovery time Edelman was searching for.

"Doing laparoscopy is a tremendous benefit to athletes because you make little incisions and they're not going to get pain at their incision sites for very long," Edelman said. "So they're able to get back to their normal activities faster. You're actually able using this video equipment to diagnose the hernias whereas before you had no simple mechanism to do it. There are still surgeons who fix sports hernias with a big cut on the belly, and that takes a long time to heal.

"These biologic materials are now becoming very prevalent, but a lot of surgeons haven't bought into these biologics. I have because I've seen their benefits. **The advantage of a biologic is if you put somebody's own tissue in their own body the body accepts it quicker, you heal quicker, and you can get back to normal faster.** In contrast, a mesh or a rag becomes very hard. You put that inside somebody's body and the body will scar against that and form a very thick material. **Then it may take three to six months for that hardness to loosen up to a point where an athlete can start moving normally.** Most of us common Joe's when you stick a piece of rag in our body, a mesh, it may take us three to six months before we go out and become that weekend athlete or go out and try and play golf, flag football, or three-on-three basketball with the guys. You sort of just can't move at all. Just compound that if you're a professional athlete and see what happens."

Thanks to Surgisis and Dr. Edelman's surgical procedure, sports hernias have been **relegated to merely a minor annoyance as opposed to the season ending injury they once were.**

"In the old days that was it," Edelman asserted. "They were out for the season. If it was early in the season maybe they would be available for the playoffs."

Edelman continued by discussing a common timeline for an NBA players return from one of his minimal access sports hernia procedures.

"Like anything there's probably about a week where they just feel discomfort from having been put asleep and having an operation done in a very sensitive area. And then after **about seven days pass** they are generally anxious to start training again. I'll work with the trainers on the team and start putting them through workouts starting a week after surgery. Depending on how they progress over the second week, I've gotten some back on the court in as soon **as two weeks after their surgery**. Some players do take a little longer and some take a little less. It's pretty amazing to see how they progress. **Usually within a week to two weeks they're out practicing with the team.** And then there's always how coaches manipulate their benches before they take them off injured reserve.

"I will tell you there was a player that I **had back out on the court in three days** because it was during the playoffs, and you know, you sort of cut corners when you've got some things that are really important out there. Of course, I had a very cooperative patient. When you have a patient like that who just wanted to be out there playing... you let them go. You let them play because there's very little they are going to do to hurt themselves."

Edelman's revolutionary techniques have won the respect of both the medical world and the NBA community. Because of patient-doctor confidentiality, Edelman cannot disclose what specific NBA players he's treated. However, the list is a long one and is not restricted to just the Miami HEAT.

"There's been quite a few," he said. "There's quite a few that are still playing out there that I've had a chance to work with. It's fun to watch them play."

"I can tell you that when you read the newspaper, as we all do, there's many, many pro athletes who have had hernia repairs. Working with the Miami HEAT I've come in contact with a lot of the HEAT players whether they have hernias or not. A lot of times when a team comes through Miami if players talk to their trainers and say they have this pain, I get calls to go over to the arena to see players or they come over to my office when they're in town. Some actually fly into town. But there's quite a few that I've seen and treated over the years."

While Surgisis -- due in no small part to the NBA success stories cited above -- is starting to gain more-and-more notoriety in the medical community, there has been quite a bit of skepticism every step of the way, very similar in many ways to the skepticism Dr. Edelman encountered when he began using minimal access surgery.

"We had a lot of resistance," explained Radford. "A few years back we went to a group of local general surgeons to tell them most procedures are going to be done laparoscopically in the future, and these guys laughed. They said, 'No way. I can go in and cut them open and do my procedure in 15 minutes. If I have to sit here and do it laparoscopically it's going to take me hours.' Now you notice the majority of procedures are being done laparoscopically."

"Everyone is so accustomed to synthetic material that anytime you had any type of damage or repair everyone went to synthetics. So here you have something that's been used for 40 years, and then you have something that people are coming out and saying is biological and has the ability to completely regenerate itself. That's a lot of selling

because people are saying synthetics have worked for me. But a lot of times what people don't know **is synthetics can cause a lot of issues in the human body when placed in the wrong environment or if there's an infection.** Our product is all natural."

Slowly but surely Surgisis is becoming an increasingly more viable option for patients. Still, Radford estimates that around **90% of surgeons are still using the old synthetics.**

"It's a slow transition," Radford acknowledged, "but I believe every year we have more of the surgeons looking at the Surgisis materials because it is a product that can be placed in any area of the body.

"When we first came to the market with Surgisis in 2000, there was only Cook and maybe one other company. Now you have almost a dozen companies trying to have the same product or technology we have," Radford said with a laugh. "Not only will the physicians eventually move more towards that material, but you now see companies **investing millions and millions of dollars in this technology.**"

Surgisis has evolved to the point where it is being used for much more than just hernias. In fact, it has been used in surgical treatments ranging from tumors to plastic surgery.

"Cook now has a pretty broad range of products using this Surgisis technology for not just hernia repair but all kinds of soft tissue repair," explained Cook's Director of Public Relations Dave McCarty. "It's a very remarkably broad material in terms of its ability to provide a matrix for the body to heal itself on."

"If you consider the top of your head to the bottom of your feet, this material is used in almost every area of the body," added Radford. **"There's at least 40 or 50 different applications that this product has been used clinically for."**

Dr. Edelman offered a bit of cautious advice, though, making sure people understand that while minimal access surgery using Surgisis has benefited many people, it's not for everybody.

"Just because we're talking about this and it's kind of neat and exciting doesn't mean it **applies to everybody out there, nor every NBA player. Every person is unique and every NBA player has unique problems.** You have to approach people selectively. People should always see their own physicians and get their opinions, and it never hurts to get second opinions. Someone may come to me for an opinion and I recommend that people get another opinion before they have surgery. Getting another opinion is always a good idea, especially before you have something as big as an operation."

Still, what Edelman and Cook Medical have brought to the NBA has no doubt **revolutionized the treatment of sports hernias and inspired future innovations that will further enhance sports medicine in the years to come.**

"I've been on this cutting-edge forefront of surgery for 20 years," Edelman confided. "I always liked looking at what's new, and if it makes sense you can get informed consent from patients and try these new things. I kind of like being on the cutting-edge and trying

new things as long as you follow basic guidelines. For example, you don't put a material in a patient that's not FDA approved, and Surgisis was approved by the FDA. You don't do an operation on somebody if they don't need it and, of course, I don't do that.

"I'm sort of used to being an outcast and being a little bit of a cavalier type guy," Edelman said in closing. "It's the way I live."

And you can bet there are more than a few NBA players who are very grateful he's chosen to live his life that way.