Three Worlds Collide

THE BOSTON NANNY TRIAL TAUGHT ALISA GEAN A LESSON: DOCTORS, LAWYERS AND THE MEDIA TAKE VERY DIFFERENT APPROACHES TO THE TRUTH.

by William Wells

ONE OF THE MOST CONTENTIOUS MURDER TRIALS of the decade took Alisa Gean, MD, away from her hospital work in 1997 for a stunning few days spent in the eye of a media maelstrom. Now, back at San Francisco General Hospital, a journalist is asking her to explain, yet again, the facts concerning the Boston Au Pair murder trial. Meanwhile, a huddle of neurosurgeons and neurologists is likewise calling for Gean's attention. With apologies to her visitor, she joins her medical colleagues.

A decision on brain surgery is at stake. A four-day headache brought a 52-year-old woman into San Francisco General Hospital (SFGH), and an abnormal CT scan prompted a special study of her brain vessels. Gean peers at the spidery branches of a cerebral angiogram. The neurosurgeons chat while waiting for the verdict. Gean finds a slight swelling of one artery and a few additional irregular blood vessels sprinkled around. But there is no single defect that cries out for the neurosurgeon's scalpel. Gean says she thinks this is most likely a case of vasculitis — a case not for the neurosurgeons but for the neurologists, who must now determine if the woman needs steroids to stop an autoimmune reaction, or antibiotics to halt an infection. As the neurosurgeons troop off to their next patient, Gean settles back into her office. Photographs of her cats surround her; a particularly sleepy one is pictured lying on three volumes of "Radiology of the Skull." With brain scans arrayed behind her, Gean resumes her tale.

"I first became involved in the case when Dr. Charles Fitz called me for advice. He's one of the founding fathers of pediatric neuroradiology, so I was very flattered," says Gean, Stanford University School of Medicine, alumna, class of 1983, and an associate professor of neurology, radiology and neurosurgery at the University of California, San Francisco. "He FedExed the films overnight, and that was my first red flag that this was kind of intense," says Gean, who has served as chief of neuroradiology at SFGH for the last ten years. She is the author of a leading textbook on the diagnosis and imaging of head trauma. So it was an honor, but not a surprise, when Fitz called her for advice.

It looked, says Gean, as if the patient was having an active brain bleed, but that this was associated with a previous bleed. "The tissue the body makes to clear up the first bleed is more fragile, so it is more likely to hemorrhage again," she explains. "As a result, even seemingly trivial trauma can cause a re-bleed," she says.

When Fitz asked Gean if she would talk to an attorney about her opinion, she agreed. "All that time," she says, "I had no idea that this was a murder case, that it was international, that it was an abuse case in which the son was the child of two Harvard-trained physicians, or that it could be such a high-profile case with Barry Scheck hired as the defense attorney. But being unaware of these facts was vital as I had nothing to bias me. I had just the CT scan."

That CT scan was from Matthew Eappen. On February 4, 1997, at the age of eight and a half months, Matthew stopped breathing and was admitted to Boston Children's Hospital. Swelling of the brain caused by prolonged anoxia added to pressure from internal brain bleeding. Though surgery to relieve the pressure was performed that night, Matthew never emerged from a coma. Life-support machines were turned off on February 9.

Matthew had been under the care of Louise Woodward, a 19-year-old live-in nanny from Elton, England, and the only

ROBERT OLDING

adult with Matthew on the afternoon that he stopped breathing. On March 5, 1997, Woodward was indicted on a charge of first-degree murder.

At the request of Woodward's defense attorneys, Gean went to Washington, D.C., for a weekend-long conference with experts in neurosurgery, forensic neuropathology, ophthalmology and biomechanics. Together they came up with what they felt was the most likely series of events based on the available evidence.

"The main issue in the nanny case was the age of the brain injury," says Gean. The bleed that stopped Matthew's breathing was a subdural hematoma. This sort of bleed can begin when shaking or a sharp blow makes the brain slosh around in the skull, tearing one or more of the blood vessels that dive down from near the skull into the interior of the brain. The prosecution's neuroradiologist, Patrick Barnes, MD, of Boston Children's Hospital, said that the child's injury was all new, fresh blood. This would imply that Woodward, the only person close to Matthew on February 4, had assaulted him with considerable force. In other words, that Woodward had murdered the baby.

Gean's opinion differed. Her re-bleed hypothesis required only subtle trauma. "For an old injury to bleed again doesn't necessarily require such significant force," she says. "It could have occurred following something as innocent as his brother playing with him roughly, which was known to happen." And the older bleed could have been caused either by an accident that had gone unnoticed or by a violent act committed by any number of people with access to Matthew over the preceding weeks.

Gean is very specific in explaining what the evidence told her. "The prosecution claimed that Louise Woodward shook this child continuously for 60 seconds straight and then slammed his head on a hard surface in a way that was equivalent to a drop of 20 feet," she says. "The films don't support that story."

"I'm not saying she didn't injure this child. But Matthew's injuries did not occur in the manner in which the prosecution claimed."

Gean's testimony in October revolved around a CT scan of Matthew's brain that showed two crescents near his skull. Closest to his skull was a gray crescent that Gean identified as the old subdural hematoma. The prosecution claimed this was cerebrospinal fluid (CSF) but, according to Gean, the location, compartmentalization and appearance of the crescent did not fit with the prosecution's hypothesis. "The second crescent, internal to the first, was the new, active bleed," she says. "It probably originated from disruption of delicate vessels that were healing the first bleed."

The CT scan also showed a small skull fracture with characteristics suggesting to Gean it was not new. There was only a pimple-size bump above the fracture rather than the larger swelling typical of recent head injuries. Matthew may have received his head injury when he fractured his wrist. How he got the wrist injury is not known — Matthew's parents had not noticed it before his hospitalization — but even the prosecution acknowledged that the wrist fracture was about three weeks old.

Gean was on the stand for two days defending her diagnosis. "I started out just fine," she now says, "but by the sixth hour of cross-examination I looked like and felt like I had been put through the wringer."

But it was the prosecution's dogged tactics, rather than the length of time on the stand that took a toll. The lead prosecutor, Martha Coakley, was hoping to become the district attorney and she was determined to win — even if it meant harassing the de-

fense experts, Gean says.

"I had never testified before a jury in a murder trial, and I was a bit naive going in. I was determined to tell the truth and describe the facts, but the prosecution had their agenda and their way to elicit only what fit into that agenda. I didn't have the freedom to discuss the issues so they would be easily understandable to the jury. That was frustrating."

In the end the jury was faced with conflicting testimony from various expert witnesses in almost every relevant specialty. "Experts do disagree. That's true in every field," says Gean. "But that makes it very difficult for the jury."

And frustrating for the experts. Gean believed that Patrick Barnes, the prosecution's neuroradiologist, was interpreting the CT scan incorrectly. "I wanted to sit down with him and say, 'Pat, this is why what I'm saying makes sense,' " she says. But the standard gag order prevented the two of them from consulting with one another.

Gean's solution is a radical one. "Let the defense and the prosecution select five experts each, put them together and let them examine the scientific evidence and hash it out. That, I think, would be more efficacious, as well as less theatrical. But I think it's naive of me to think of that ever happening."

In the absence of such a mechanism, the jury apparently went with the hometown interpretation. "The case was in Boston, the parents were Boston physicians, and the prosecution experts were from Boston Children's," says Gean. "This was a case that was clearly 'too close to home.' " The defense experts, in contrast, were from all over the country, and Woodward's au pair agency paid for expensive out-of-town defense attorneys, including Barry Scheck, recently in the spotlight after defending O.J. Simpson.

On October 30, 1997, the jury found Woodward guilty of second-degree murder. There was uproar in England. Eleven days later Judge Hiller Zobel reduced the verdict to manslaughter and sentenced Woodward to the 279 days she had already spent in jail. There was uproar in Boston.

Both sides appealed to the state's highest court, which in June 1998, announced it would allow Zobel's decision to stand.

"I think the judge made the right decision, because I think the jury overlooked some key issues," says Gean. "I'm not saying Louise didn't do anything. The injuries are consistent with head injury, but are not consistent with the magnitude of force that the prosecution was claiming."

That kind of qualified opinion was lost in the swirl of media coverage of the case. The case was proving to be great copy. The locals didn't understand the demure English defendant, and they were wild at the idea of a foreign murderer preying on their children. At the same time they were blaming the Eappens (both working physicians) for deserting their infant. Meanwhile the British people felt that the bizarre American justice system that had produced the O.J. trial was set to mistreat one of their own.

Gean was interviewed by several Bay Area six o'clock TV news shows, and she thinks only one of them came close to getting it right. "One reporter began the six o'clock news by saying 'A prominent Bay Area physician claims that Louise Woodward is innocent,' " says Gean. "But I never said that Louise Woodward was innocent."

Each hour-long interview ended up as approximately 20 seconds of airtime. "It was a waste of my time, and it was a waste of the viewer's time because it wasn't correct," says Gean. "They managed to pick and choose and concatenate whatever words they wanted to provide their story, their entertainment. If this is the way they cover this story, what does it say about the news I watch every day?"

"I don't want to say it so bluntly as 'don't trust the media,' " she says. "But be careful, because they have a tendency to cut and splice to get the story they want." More specifically, she recommends live interviews, a forum that she insisted upon after the first series of taped interviews.

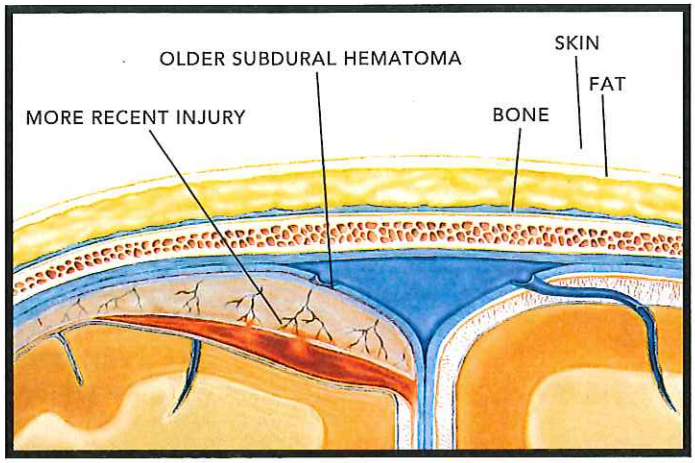
On some of the less dignified news outlets there were suggestions that defense experts had been bought. "I found that so unbelievably offensive," says Gean. "I've spent 17 years doing what I do and the last thing I want to do is to lose the respect of my peers. After all the effort and sacrifices I've made during my training, for a stranger to imply that I don't have the ethics to tell the truth is amazing and demoralizing."

If something like this happens again, she will be ready to withstand such coverage, she says. "Next time, I'll realize I'm in a lion's den. I'll realize that people are not looking out for my interests, and I'll go into it with a bit more insight. I thought I could make a difference here. I was trying to share my expertise to help people, but now I see the process is not as straightforward as I thought."

Gean is far happier when she can freely discuss dissenting medical opinions with her colleagues, as happens often in her work at SFGH. Her job is to define the precise location and character of any and all brain lesions. Is it a tumor, infection, aneurysm or trauma? Does it have irregular margins that will make it difficult to remove or will the neurosurgeons encounter blood vessels that should be treated with particular care? She

CONTINUED ON PAGE 40

Diagram of a head injury



THIS DIAGRAM IS BASED ON CT SCANS OF MATTHEW EAPPEN'S HEAD. CLOSEST TO THE SKULL IS A CRESCENT THAT APPEARS TO GEAN TO BE AN OLDER INJURY — A SUBDURAL HEMATOMA. The crescent internal to the first probably represents a newer, active bleed, Gean posits.

DIAGRAM: ALISA GEAN

THREE WORLDS COLLIDE

CONTINUED FROM PAGE 36

works closely with other neuroradiologists, neurosurgeons, and neurologists at a hospital that is a major trauma center for the San Francisco Bay Area and one of the most respected trauma centers in the world.

Many of the patients at SFGH cannot afford medical insurance. "You see dramatic diseases that haven't been diagnosed," says Gean. "You're starting from scratch, so it's pretty challenging and you're able to make a difference in someone's life. Our team feels tremendous satisfaction."

"I wish the community knew that it's getting some of the best minds in the country," she says. "This is the county hospital, so there's little fancy wallpaper and few healthy plants in this place. But there's great medical care. I wouldn't want to work anywhere else."

The calls from lawyers take her from that work, and they are more frequent since the Boston trial. Fortunately, almost all cases settle before trial. Gean sticks to her original policy: Any opinion is based on the brain scans, without initial knowledge either of the clinical facts or of whether the requester is a prosecutor or defense attorney. That is the tactic that landed her in front of Martha Coakley in a Boston courtroom, and she does not relish the same thing happening again. "I'm still kind of licking my wounds from the first nine rounds," she says. But Gean is not about to become a lawyer-shunning hermit. "It would be a shame," she says, "to let the Martha Coakleys submerge my desire to make a difference." **SMD**

THE VACCINE MAKER

CONTINUED FROM PAGE 30

ies. But Greenberg showed that the VP6 antibodies appeared to be latching onto rotavirus inside gut cells. Rotavirus sheds its outer coat as it enters cells, so inside the cells its VP6 was exposed to attack.

What all of this means for vaccine development is far from clear. RotaShield has monkey VP6 and yet it apparently works quite well. However, all VP6 proteins from all types of rotaviruses are very similar so that the monkey VP6 is likely to induce immunity to human strains. "The VP6 findings have caused me some trouble since they are not typical of how we think protective immunity works," says Greenberg. "They are true, and the other lines of data support these observations." Fitting them into the world of vaccines in humans is another matter.

The point is moot for RotaShield. By the time the RotaShield trial results came in, the basic science had leapfrogged ahead of the knowledge used to develop the vaccine. But it seems that the early, educated guesses somehow worked out. Perhaps the monkey VP4 or VP6 are just similar enough to the human versions to work, or maybe the mouse model of rotavirus infection doesn't exactly reflect the human situation. Further experiments should sort out those issues, but in the meantime there is an effective vaccine ready to be used. As Greenberg says, "It's a situation of 'if it's not broken don't fix it.'"

Still, Greenberg feels compelled to continue his research into rotavirus. "First, we have a chance to improve the vaccine," he says. "It works well for severe disease — it's 70 to 90 percent effective in the most severe disease. But it's less effective at protecting against mild disease."

"Second, rotavirus infection is a terrific model system to understand mucosal immunity in general," he says. Almost every animal has its own version of rotavirus, so there are plenty of variants and model systems to work with. And all those variants appear to infect through a mucosal surface, in this case, the digestive tract. Mucosal surfaces are a common site of attack for many viruses, such as HIV, and bacteria, such as cholera. If Greenberg has his way, the rotavirus vaccine could be just the beginning. Eventually the rotavirus vaccine might be used as a carrier system to deliver other vaccines to the GI tract as well. **SM**