

Metamorphosis

By E.S. Strout MD

Angiostatin: *A substance involved in blood clotting. It is found in minuscule amounts in human serum. It halts the development of new blood vessels (angiogenesis), which is necessary for tumor development. Angiostatin represents a prototype for a new class of agents to treat cancer.*

MedicineNet.com

Rachel (to Deckard) I'm not in the business. I *am* the business.

Blade Runner

1.

Irvine, California. Friday, 28 June 2002. 1030 hours:

Jacob Silverman, CEO of BioTech Pharmaceuticals, glowered through reading half-glasses perched on his nose. He shoved the offending report across the desk to his Security Chief. "From a confidential source."

Edward Brower flipped pages. "McCullough. Your FDA man?"

"I know he's a flake, but this needs checking out."

"Could it be a similar venture?"

Silverman's neck flushed with anger. "No, dammit. We've hacked into all of our competitor's computer files. No similar research hits."

"Something under our radar, then."

"There's a lotta bucks at risk here," Silverman said. "Talk to McCullough. He can access records of government-approved medical research ventures."

"He'll want something."

Silverman nodded. "If he's right, ten grand."

One hour later:

“Not another drug company, sir,” Brower said. “A Federal grant. U. C. Irvine Medical Center in Orange.”

“Take care of it, Ed.”

2.

St. Joseph Hospital, Orange, California, one year earlier:

Needle biopsy of Elinor Matson’s newly discovered breast mass had been checked by three pathologists. Infiltrating ductal carcinoma, Grade III was their consensus. Surgeons recommended radical mastectomy with axillary lymph node dissection. Second-opinion consultants agreed.

“No disfigurement,” Elinor argued. She chose lumpectomy and sentinel node sampling.

One lymph node was positive for tumor spread. Six weeks of radiation followed by chemotherapy were commenced.

Adriamycin gave her gut-wrenching nausea and vomiting. Two plastic-lined trash cans by the bed. “One for lunch, one for dinner,” she told visitors. They thought she was joking. Worse, it resulted in total hair loss. She had three wigs, different colors and styles.

The tumor’s course was relentless, with bone, skin and soft tissue spread. Elinor was granted leave from her Laboratory Technologist position with full pay and benefits. Her younger sister Claire moved in to help out.

“I’m only twenty-seven,” Elinor lamented. “What have I done to piss you off, God?” “No more chemo,” she told Dr. Hendricks. “I’ll just take a joint or two when I get really depressed.”

Hendricks had no argument.

Thursday, 8 November 2001:

“What’s this?” Claire asked as she dried her sister’s back.

“Say what?”

“You had a lump here before,” she said, guiding Elinor’s hand.

“It’s gone. How weird. What’s happening? I’d better check my other skin mets.”

“Mets?”

“Metastases. Spread from the primary tumor. Two more. One on my arm and another on my scalp.” She pushed her sleeve up and probed with fingertips. “This one’s gone, too. What’s happening?”

“No lumps on your head either,” Claire said after a careful inspection. “Maybe the chemo is starting to work.”

Elinor fingered the Egyptian ankh symbol on the gold chain around her neck. “I quit the Adriamycin six weeks ago.”

3.

“My skin mets are gone,” she told Dr. Hendricks. “And my MRI shows the bone lesions are smaller.”

“Delayed chemo reaction, Ellie,” the oncologist said. “We need to start the Adriamycin again.”

“Not a chance.”

Six weeks later:

Elinor threw away the wigs. She liked the brush-cut look. “I feel fine, Claire. And I’ve gained five pounds. I don’t understand.”

“Don’t ask me, Ellie. I’m just a computer geek.”

“I e-mailed scans of your CT’s and MRI’s to the oncology guys at Stanford,” Dr. Hendricks said. “They thought I’d sent the wrong films. Spontaneous remissions are rare,” he said. “I know a research guy who would like to meet you.”

4.

Friday, 22 February 2002:

Dr. Sheldon Sharpe, head of U.C. Irvine's Chao Cancer Center research section stared in awe at a sharp spike on the screen. "I've never seen this substance in such high concentrations. It's twenty times normal. It is usually a tiny natural protein component in humans."

"Is this good?"

"Very. It's an angiostatin, Ellie. It's attacked the small vessels and capillaries feeding your primary tumor and its satellites, wiped them out. It's aggressive as hell. A biologic Delta Force."

Elinor rolled the word around on her lips, then spit it out. "That's a mouthful. How come I have it?"

"I'll show you." Dr. Sharpe tapped a pen on Elinor's chromosome map. "This area has to do with vascular proliferation."

She squinted a skeptical eye at the cellulose sheet. "Just a purple squiggle to me, Prof."

"I've compared your genetic pattern with that of similar breast cancer patients. Their predisposition to breast cancer is a result of this translocation." He tapped a finger on a broken dark band on one of the chromosomal arms. "You have it, too. But they don't have your mutation."

"So I got zapped by some weird cosmic particle and they didn't?"

"I know some physicists who would agree."

"Good God." She raised the ankh symbol to her lips and kissed it.

5.

Tuesday, 18 June 2002:

Elinor fed the black and white rabbit a chunk of carrot and rubbed its furry ears. "This guy looks darn healthy to me, Prof."

Dr. Sharpe handed her a Polaroid snapshot. “Chondrosarcoma. Malignant as hell, implanted in its cervical spine six weeks ago.”

She gaped at the deformity. “Wow. Poor bunny.”

“I injected a nanoliter of your refined angiostatin ten days ago.”

Elinor pounded a fist into an open palm. “It works! Human volunteers next.”

“Too soon, Ellie.”

“You gotta be kidding.”

Dr. Sharpe looked up from the longhand scrawls on his note pad. “Bureaucracy in action.”

“I’m the only one. The astronomical exception. I know it.”

“So do I. But FDA regulations say two years of animal testing. Then academic and lay review committees and FDA approval before human testing can begin.”

“Damn.”

6.

Two weeks later:

Dr. Sharpe pressed his temples between two fists and stared at the desktop. “Headache, sir?” Elinor asked.

“I’ve closed the angiostatin files.”

She inhaled a shocked gasp. “You did what?”

The researcher’s voice was low, constrained, almost a whisper. “No further research. A Mr. McCullough was here with two federal marshals. Said our applications were improperly submitted.”

“We have FDA approval,” Elinor howled.

“They confiscated our hardcopies and my written notes. I called the FDA. They claim to have no such records.”

“But we’ve backed up all our data on disk.”

“They took those, too. And our hard drive.”

“We can sue them.”

Dr. Sharpe’s downcast sigh spoke volumes. “They’ll close the lab if we interfere. Rescind all federal research grants. I can lose tenure and retirement pension. I’m looking at arrest, fines, federal prison.”

“We can go to the Board of Regents, the California Medical Board.”

“Already tried. They’ve been bought off.”

Elinor slumped to a chair and stared at the floor, her face darkening like a summer thundercloud. When she looked up her eyes shot sparks. “Something bigger than the FDA is messing with us, Prof.” She stormed to the office door. “I’ll be back.” One of its glass panels shattered when it slammed shut behind her.

7.

Claire sat at her computer console, fingertips poised over the keyboard. “What am I looking for, Ellie?”

“Stab in the dark. Pharmaceutical companies engaged in cancer therapy projects.”

“Got some names?”

Elinor handed her a scribbled list on a smudged page of note paper. “Start with the big guys. Lilly, Merck, Pfizer, like that. Then these.”

“Could take a while.”

48 hours later:

“Twenty-six companies, Dr. Sharpe. All involved in some aspects of cancer research,”

Elinor said. "All readily available. Easy encrypts. Except one. Biotech."

"Never heard of that one."

"New company. Couple of big successes. Rapid growth, some questionable practices, no proof. Their research project data was guarded by a complex password."

She handed over several sheets of printout. "Not complex enough. Claire found this."

8.

Dr. Sharpe turned pages. His eyes grew wide with disbelief. "Damn. They're developing a synthetic angiostatin. How did she find . . .?"

"Don't ask."

"Computer fraud, Ellie. We could be in big trouble."

"Claire tried to make it look like a random event."

"There's money involved, Ellie. Must be millions. Maybe billions once they market the product."

"BioTech's bought that FDA guy," Ellie hissed.

Sharpe nodded. "Lotta bucks to some low level Civil Servant."

"I've got another idea, sir." Elinor unfolded a lined yellow sheet of legal paper with her scrawled notes.

Dr. Sharpe took a deep breath, did a slow exhale. "You'll be taking a big chance with this, Ellie. It's dangerous as hell. For both of us." Then he smiled. "Be careful. I'm working on some badly overdue animal studies and controls for backup."

Elinor gave him a sad smile. "I know the protocol, Professor Sharpe, but BioTech has us in a box."

9.

July - September 2002:

Richard Graves, age fifty-four, was dying of malignant melanoma with metastatic spread. The pretty dark haired medical technologist assured him the venipuncture was routine.

Graves was up and around four days later. MRI confirmed disappearance of metastatic lesions. He left for home two weeks later.

A teenager with Ewing's Sarcoma of bone at Children's Hospital of Orange went home cured. The pediatric oncologists scratched their heads, wrote it up as a case of spontaneous remission.

Other hospitals reported similar results in advanced cancer cases.

10.

Friday, 1 November 2002:

"It's a cluster, sir. Just Orange County hospitals," Ed Brower told the BioTech CEO. "Spontaneous cures."

"It's got to be something to do with that U.C. Irvine project. Dammit, Ed. I told you to make this problem go away."

"It takes time, sir."

"Like hell. Get those recovery patients in here."

Their descriptions matched. "Elinor Matson," Brower said. "A medical technologist and part-time oncology tech. Different hospitals. She collected blood specimens, started IV's."

"What's the connection?" Silverman asked.

"Her spontaneous cure was reported a year before this outburst," Brower responded.

"Breast cancer. And she's been involved in research with Professor Sharpe."

"Make some sense, please?"

"She has a naturally occurring high level angiostatin according to our research folks. And

she's been injecting it into cancer patients."

Silverman's face turned an apoplectic purple. "Get her."

"Miss Matson is in custody of Security as we speak."

11.

"I'll see you in court," Elinor shrieked as a BioTech security cop immobilized her arms. His face oozed blood from fingernail claw gashes.

"We've decrypted your file," Silverman said, his face grim and threatening.

"Those patients all recovered. What's your problem?"

"The problem, Miss Matson, is bigger than you can imagine." He motioned toward the door. A technician with blood collection gear entered. "I will need a blood sample."

"That's battery. I'll sue your ass from here to Armageddon."

Silverman croaked a sinister chuckle. "We know your sister Claire broke into our files. That's a felony. She's going to a federal prison for a very long time. Her cellmate will be a psychotic serial murderer. And you can make it a threesome."

12.

Wednesday, 13 November 2002:

BioTech's studies on Elinor's serum confirmed the University's findings.

"We need human studies to verify," BioTech researchers cautioned. "Two years worth, with controls."

"Bull! They confirmed human results in their illegal in vivo experiments. We're moving ahead. Our synthetic product is an exact copy of her angiostatin." CEO Silverman insisted.

"Health and Human Services will want confirmation of the FDA findings," Ed Brower reminded him.

“McCullough gets twenty grand if there are no approval problems.”

13.

One week later:

Elinor and Dr. Sharpe watched in rapt fascination as CEO Silverman’s announcement was aired on major networks.

“Our new product is AngioGard. It reverses the course of cancerous tumors in humans by shutting off their blood supply. I am so confident in this product that I have taken a prophylactic dose. I am now immune to all forms of malignancy. This product will be available by prescription, beginning Monday morning. Pharmacies nationwide are stocking it as we speak. Orders have outstripped those of Viagra by twenty million. For further information go to our BioTech website at . . . ”

A yelp from Elinor. “A hundred fifty years ago he’d have be selling snake oil out of a covered wagon.”

Dr. Sharpe hunched a noncommittal shrug. “I tried to warn him.”

Ellie gave him a questioning stare. “About what?”

“My animal control results. Their head research tech believed me. She couldn’t convince Mr. Silverman.”

“Meaning what, Prof?”

“Very soon now. Tomorrow at the latest.”

14.

Headline, Orange County Register. The next morning:

BIOTECH CEO DEATH A SHOCK TO THE PHARMACEUTICAL INDUSTRY.

Jacob Silverman, age 59, head of BioTech Pharmaceuticals, was pronounced dead at the St. Luke’s Hospital Emergency Room yesterday. He collapsed soon after announcing a scientific breakthrough in cancer treatment and prevention. Extensive resuscitative efforts failed. An autopsy by the Orange County Coroner’s pathologist revealed

shutdown of his entire vascular system, with constriction and necrosis of all small and large vessels. Anaphylactic shock is suspected as the etiology. Investigation continues.

BioTech's Public Relations Officer was unavailable for comment.

15.

"Something you want to let me in on Prof?" Elinor asked.

Dr. Sharpe said, "Your angiostatin becomes part of a cancer patient's permanent defense mechanisms. It goes dormant after wiping out the tumor's blood supply. It is reactivated if another malignancy arises."

"Okay, I knew that. Something else?"

Dr. Sharpe nodded. "The control studies with rats."

"What about them?"

"Your mutant angiostatin is quite a determined entity, Ellie. If it can't locate tumor-involved vessels it goes after normal ones."

"Oh no. Mr. Silverman . . ."

"Those rats were normal controls, Ellie. They didn't have cancer. Every one of them died within minutes after injection."

The End