

Corneal transplants give toddler the gift of sight

BY RENÉE SMOGLUND
STAFF WRITER

Carmen Muglia, 3, of Garden City was just 3 weeks old when she received the first of six corneal transplants. At birth, her eyes resembled two light-blue marbles, said her mother, Nancy.

Two of the subsequent transplants were rejected and two failed because of infection. Transplant rejection is not an unusual occurrence in infants and very young children with vigilant immune systems.

Happily, the third transplant in Carmen's right eye passed its second anniversary in December; the third transplant in her left eye will have been in place two years in April.

Today, Carmen is a bright, energetic toddler who keeps pace with the 5- and 6-year-olds in her Livonia day care center. At home, she runs and plays



ball with her older sister, Chelsea, 9, and never misses an episode of "Teletubbies." "It's almost like she doesn't have any fear. She's just a bratty little 3-year-old," said Nancy Muglia, who actively campaigns for the Midwest Eye-Bank and Transplantation Centers.

Carmen, a poster child for MEBTC, is one of the 1,400 Michigan residents who have their sight restored every year because someone cared enough to become an eye donor. Nationally, that figure rises to more than 42,000.

Birth defect

The light-blue marble look of Carmen's eyes at birth signaled an opacity, or extreme cloudiness, of the corneas. Opacified corneas prevent light impulses from reaching the brain.

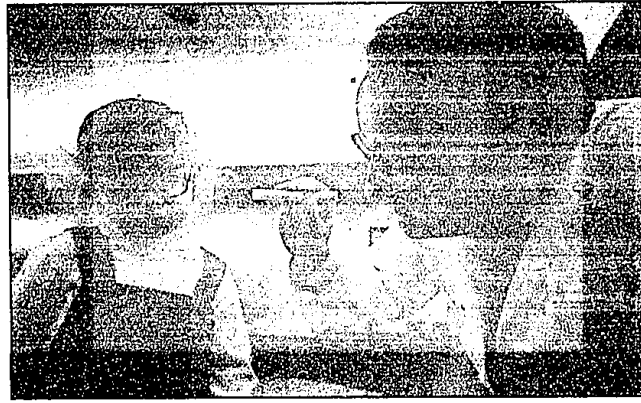
The cornea, the clear window that covers the pupil and the lens, serves as the main refractive element of the visual system. It directs incoming light onto the crystalline lens, which focuses it onto the retina. In order to refract properly, the cornea must acquire transparency during embryonic development and maintain it throughout life.

The cornea is made up of living tissue that continually pumps fluid out. When the pumping function fails, the cornea swells and vision becomes less clear.

No one in Muglia's family — not one of her nine brothers and sisters and none of her mother's 17 other grandchildren — had ever had a serious medical condition, much less a birth defect.

"Shoot, I don't even think my mother experienced a broken bone with us. For Carmen to have this problem, it really enlightened us."

The appearance of Carmen's corneas at birth was hard to classify, said Dr. Alan Sugar, Carmen's transplant surgeon and a professor of ophthalmology at the Kellogg Eye Center at the University of Michigan School of Medicine. Most likely, it resulted from a moderately rare condition known as Peter's anomaly or "mesenchymal dysgenesis." Something had interfered with the develop-



STAFF PHOTO BY PAUL HEDDERLUND

Focus: Dr. Alan Sugar of the Kellogg Eye Center at the University of Michigan School of Medicine checks the status of 3-year-old Carmen Muglia's eyes. The young girl has had six cornea transplants, performed by Sugar, beginning when she was just three weeks old.

ment of the front part of Carmen's eyes in the early fetal stages. In pediatric patients, corneal transplants need to occur early in life "or the vision system doesn't develop properly," said Sugar. "It's kind of like the circuitry must be used early to become permanent."

Corneal transplants in infants are usually done

at two or three months; however, because the bulge of Carmen's corneas was so severe, Sugar performed surgery at three weeks. He replaced the disc-shaped segments of Carmen's impaired corneas with similarly shaped pieces of healthy donor corneas.

Please see CARMEN, A5



Happy: Carmen Muglia, 3, of Garden City is a poster child for Midwest Eye-Bank and Transplantation Centers.

Corneal transplant is most routinely performed

BY RENÉE SMOGLUND
STAFF WRITER

The corneal transplant is the most frequently performed human transplant procedure. According to statistics from the Eye Bank Association of America, more than 549,889 corneal transplants have been performed since 1961, restoring sight to men, women and children from ages nine days to 103 years.

Looking through a surgical microscope, a surgeon uses an instrument called a trephine, which acts like a "cookie cutter,"

to remove a person's distorted cornea and to cut out a similar piece from the donor cornea. The surgeon then secures the new cornea with sutures finer than a human hair.

Over 90 percent of all corneal transplant operations successfully restore sight, reports the EBAA.

"It is the most successful transplant in the body," said Dr. John Barletta, an eye surgeon at St. Joseph Mercy Hospital in Ann Arbor. The cornea's lack of blood vessels makes it immune-privileged tissue and "not an

enemy of the body's defenses."

Almost anyone can become an eye donor. Cataracts and poor eyesight are not prohibiting factors. Age, for the most part, is not a factor, however, Barletta said his medical group, Huron Ophthalmology, does not use corneas from donors over 75 or under one year.

Barletta cited several causes for corneal transplants:

■ Fuchs' dystrophy involves a more rapid loss of the cornea's finite endothelial cells. It usually occurs in people over 50 who usually, but don't always, have a

history of the condition.

■ Keratoconus causes the cornea to become cone shaped by a process of collagen degeneration. It results in irregular focusing. "It's actually quite common. One in 20 contact wearers may have it," said Barletta.

When the cornea thins and bows, scarring may occur at the apex of the cone, creating opacity. Ten percent of keratoconus patients will need surgery, said Barletta.

■ Corneal surgeries in the elderly can cause a decrease in the cornea's finite cells. Howev-

er, Barletta emphasized that corneal decompensation after cataract surgery is rare. His medical group does 1,000 cataract surgeries a year. "Of those patients whose corneas decompensate we can count on one hand."

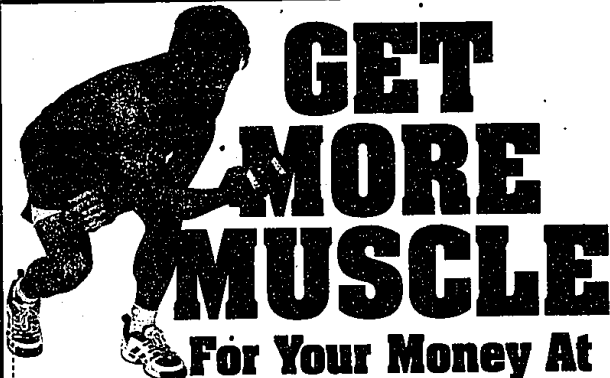
■ Infections from herpes type 1 cold sore variety can attack corneas and cause scarring. Also, rubella contracted by a fetus through its pregnant mother, may result in infant corneal opacity.

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Corneal transplant surgery

Using a "cookie cutter" procedure, a surgeon will use a trephine to remove the distorted cornea and to cut out a similar "button" from the donor cornea. The surgeon will then place the donor cornea in the patient's eye and stitch them together.

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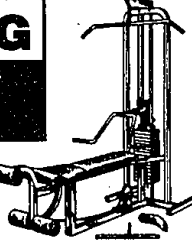
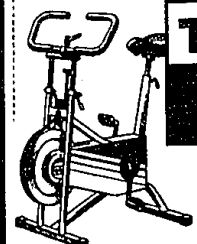


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