Moran specialists Dr. Alison Crum and international fellow Dr. Anya Gushchin brought oculoplastic vision care for the first time to Mingende Rural Hospital in the remote Eastern Highlands of Papua New Guinea (PNG). Working with former Moran trainee Dr. Ben Limbu, the team treated villagers suffering from an unusual form of droopy eyelids and trained local doctors.

**SUMMARY**

Mingende Hospital in the rural Eastern Highlands has only two doctors: Medical Director, Dr. Gabriel Yohang, and Dr. Maggie Taune. Together, they do everything—administer anesthesia, deliver babies, treat appendicitis, and handle trauma. For Dr. Crum, watching Dr. Taune work was fascinating: “She would start anesthesia on a child, intubate another patient, do the surgery, recover the patient from anesthesia, take care of patients afterwards, and see patients in clinic for follow-up—real pioneer medicine.” Neither, however, had any specialized ophthalmology training.

At a Glance

- **Site:** Mingende, Papua New Guinea
- **Partners:** Goroka Eye Team, Mingende Rural Hospital, Port Moresby General Hospital, Great Lakes Eye Care, Tilganga Institute of Ophthalmology, DAK
- **Our Medical Team:** 4 surgeons—Drs. Alison Crum, Anya Gushchin, Ben Limbu of the Tilganga Eye Institute, and Michael Seward of Great Lakes Eye Care; 1 neuro-radiologist—Dr. Edward Quigley, University of Utah
- **Patient Impact:** Sight-restoring surgery on 48 patients, including reconstructions, tumor resection, and slings. 12 custom “ptosis crutches” constructed.
- **Local Partners:** Dr. Maggie Taune, general medical doctor, surgeon, and anesthesiologist, Mingende; Dr. Gabriel Yohang, medical director, Mingende; Patrick Moon, physiotherapist from Callan Services; Ata Anapa, nurse, Goroka Eye Unit; Damien Sungu, senior nurse, Goroka Eye Unit; Terryleen Tseraha, nurse, Port Moresby; Dr. Jambi Garap, ophthalmology consultant, Port Moresby; Dr. Agnes Ambelye, ophthalmology resident, Port Moresby.

An Unusual Blinding Challenge

Located just north of Australia, Papua New Guinea has a population of over 7 million, over 800 languages, and is one of the most rural and unexplored countries in the world. Over 40 percent live in extreme poverty, and up to half of all children do not attend school. With limited access to health care, child and maternal mortality rates are high.

In this community, there is a high, localized prevalence for unusual droopy eyelids. “Droopy eyelids all over the world are just droopy eyelids,” said Crum. “These patients are also losing the ability to talk, swallow, and walk. It is so very different than we expected—a whole new neurologic disease that progresses throughout the patient’s entire body—very surprising, and we do not know why it happens.”
The team saw over 100 patients with drooping lids and 30 to 40 patients with other problems such as orbital masses and neurofibromas. Drs. Crum, Gushchin, and Limbu performed “sling” procedures on droopy eyelids, where a silicone sling is implanted into the forehead muscle, so that when the patient raises their eyebrows, the eyelid is also lifted enough for the patient to see.

Droopy-lid patients who were not candidates for eyelid surgery were fit with improvised “ptosis crutches”—custom glasses made on the spot to elevate patients’ eyelids. The lower part of each lens is broken out and bent up and inward toward the face. When worn like glasses, the in-turned lenses lift the droopy eyelid, allowing the patient to see through the frame. These were fitted to twelve of the oldest patients, and were a great improvement over the local trick of putting sticks in the eyelid to hold it up, which could cause infections.

Dr. Crum, Dr. Gushchin, and radiologist Dr. Edward Quigley flew to Goroka. With over 280 languages spoken, communication is a huge challenge. On the flight to Goroka, a very nice woman taught Drs. Crum and Gushchin some critical Pisin medical phrases that they would need later, such as “Opim eye bloyu,” meaning, “Open eyes belonging to you,” and “Christmas bloyu hamas?” which translates literally as, “How many Christmases belong to you?” and means, “How old are you?” But there is no equivalent for, “Raise your eyebrows,” a critical phrase for the surgical team.

Once in the highlands, the team was greeted by a crowd of dancing villagers dressed in their finest feather outfits. Patrick, the physiotherapist host, and the man who hiked the highlands to find patients, explained that the villagers wanted to walk with the team into the resource center where patients had formed a procession, singing and dancing. At the welcoming ceremony, Angela, from the Callan Center for People with Disabilities, acknowledged each team member personally. There wasn’t a dry eye in the room as she recalled how Dr. Seward had helped hundreds of patients with cataracts for the past four years and was now returning with surgeons to treat droopy lids for the first time. After the ceremony, the team got right to work.

Having only wet and dry seasons, the region was in the midst of a six-week drought, so the entire hospital had been shut down to save water for the team’s surgeries. Patients had come from all over the province, walking for as many as two or three days along the only road—the Callan Center provided food and housing for all of them.

A critical component of the mission is to train local doctors, including Dr. Taune who joined Dr. Limbu in the operating room. They were able to complete a case every 30-40 minutes, while Drs. Crum, Gushchin and Ambelye continued to see patients in clinic. Patients returning to the waiting room after surgery might as well have been stepping on to a red carpet at a Hollywood reception, such was the pandemonium in the lobby—everyone wanted to see their new eyes! By the end of the day, Drs. Crum and Gushchin evaluated 41 patients, and Dr. Limbu did 14 surgeries. The whole team saw post-ops after dinner, reminding patients to “Opim. Pasim.” “Open. Shut.” The equivalent of “Blink.”
Day 3

Dr. Crum trained Dr. Ambelye in the OR, while Drs. Limbu, Taune, and Gushchin, screened new and pre-op patients.

Day 4

By the third day, Drs. Taune, Ambelye and Garap were performing the frontalis sling surgery safely and efficiently with team doctors standing by ready to assist. This freed Drs. Limbu and Crum to do surgery all day.

Drs. Taune and Gushchin focused on “squint surgery”, working on resetting the extremely crossed, very tight eye muscles of a 14-year-old Stivin, lest he be labeled as “possessed by a spirit” or something equally terrible. They successfully reset his eyes to a more normal position, and after surgery Stivin whispered to Dr. Gushchin, “If you buy me some shoes, I can go to school and play outside.” She tried the shoes off her own feet—green crocs, which fit his feet perfectly. “I only needed the shoes for the rest of the day—who knew when Stivin might get another pair!” said Gushchin. “My hope is that with shoes and straight eyes, Stivin might finally be able to go to school.” The team screened 90 patients that day.

Day 5

Drs. Crum and Gushchin decided to tackle a case of neurofibroma that was causing a droopy lid in Samuel, a five-year-old boy. An otherwise calm OR turned a bit exciting when the child didn't like ketamine very much, and was wriggling while they tried to reconstruct his eyelid. To be safe, the surgery was rescheduled for Friday when he was feeling better.

Day 6

The last surgical day the team saw a 25-year-old woman named Singha with a very large facial neurofibroma, a tumor caused by a disorder where your body over-produces tissue around nerves. Singha’s tumor was so large that she couldn’t really lift her head, and she wore a beret covering half of her face. Neuroradiologist Dr. Quigley worked with the radiology tech to better show the surgeons which masses could safely be removed. After a four-hour operation, Singha lifted her head straight for the first time. The team waited for five days to remove the bandages to make sure she recovered well from the surgery.
Future Plans

After goodbyes, the team began their two-day journey home. They had formed lifelong relationships in Mingende and were thrilled by their successes: they saw 97 patients, performing sight-restoring surgery on 48 and making 12 ptosis crutches.

The work there is far from finished. “We need to try to identify people who want to be ophthalmologists and to continue treatment,” said Crum. “Dr. Ambelye was the only person in her medical class who wanted to go into ophthalmology. In the US, everyone wants to go into it, but ophthalmology isn’t a revered field in PNG. They don’t have many teachers or mentors; medical students don’t get exposed enough to get interested in it.”

The team would like to be able to visit next year to continue life-changing surgeries and provide necessary follow-up for patients to ensure they don’t forget to “opim-pasim” their eyes!

Patient Spotlight: Yawia, 80

Yawia, who, at 80-years-old, hadn’t gone outside for the past 20 years because he could not open his eyes, was led into the clinic by his son. Because of an unusual in-turning of his upper lids, his eyelashes scratched his corneas so badly that he could not blink, and he couldn’t eat or do anything on his own. He was functionally blind. After surgery to turn his lashes outwards, Yawia’s son said, “opim eye bloyu.” He opened his eyes and looked around with a huge grin on his face. Yawia walked home with his son—with his eyes open!