Oral and Maxillofacial Consultant Kelvin Mizen was called upon to provide a groundbreaking procedure in Ethiopia after a young boy was attacked by a hyena

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became aware of surgical mission work in Africa for facial reconstruction dealing with the ravages of noma (formerly known as cancrum oris) when I was an oral and maxillofacial trainee in early 2000.

Noma is an infective process that causes necrosis of the facial tissues, leaving severe facial defects, usually involving the lips and cheeks. It is often unilateral, but can involve the nose, eyes and mandible with associated trismus. The majority of sufferers are young children of whom approximately 90% die from sepsis. Survivors are left with terrible facial defects. It is associated with poverty, malnutrition, dehydration, measles, poor oral hygiene and immunosuppression and is prevalent in sub-Saharan Africa.

In 2007, a colleague told me about a planned mission to Ethiopia to treat noma, under the auspices of the charity Facing Africa. I have now completed my eighth surgical mission. Ethiopia has a population of 94 million and more than 80% live in rural communities. Three years ago, the country had a per capita health expenditure of approximately £12. It is believed there are currently only four MRI and six CT scanners.

Our team comprises surgeons, anaesthetists and nurses from all over the UK, plus volunteers from many countries worldwide. Facing Africa has been working in Addis Ababa since 2007 to combat the effects of noma. During the missions, many patients suffering from other diseases are brought to us with myriad head and neck conditions, including animal bites.

The case of Abel Mesfin was different. Abel is a young boy from rural Ethiopia who sustained serious facial injuries after being attacked by a hyena near his village. He was playing with friends, wandered outside his compound and was savaged by a female hyena looking for food for her cubs. The hyena clamped her jaws around his head and started to drag him 400m to her den. Abel’s mother was called and, giving chase, she somehow managed to free him. Abel was bleeding heavily and the hyena had removed his mandible, upper and lower lips, right ear and both cheeks. He also had a fractured skull. Despite these terrible injuries, he was alive. The hyena didn’t give up and came back for a second attempt only to be confronted by the villagers, who managed to scare the animal off.

After some difficulty in arranging transfer for treatment, Abel was moved to a hospital in Addis Ababa. Local staff cleaned his wounds and placed a rudimentary mandibular plate. This is where Facing Africa came in. Chris Lawrence, CEO of the charity, was contacted for advice. We were sent photographs of Abel’s injuries and gave instructions on how to keep him alive until our team could get to Ethiopia. It also appeared that part of Abel’s anterior tongue had been severed. All the evidence indicated that the surgical treatment had to be planned carefully.

Various email and phone conversations took place between all team members and it was agreed that he was likely to succumb without an intervention. The aims of reconstruction would be functional: to enable Abel to be able to speak and swallow again. However, the final decision could not be taken until we examined him in person.

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Abel pictured in December 2015, at home with his mother.
was no time to waste, so I got around this by gaining photographs of clinical measurements of Abel's own leg and using a generic adult fibula image which was then scaled down to fit. I had no idea if this would work.

Modern facial bony reconstruction is planned accurately with 3D images. This enabled us to reposition Abel's mandibular remnants precisely, then virtually osteotomise his fibula to create a neo-mandible. We then printed cutting guides and milled a bespoke reconstruction plate to secure the fragments. A huge advantage of modern techniques is that the fibula can remain vascularised on the leg while being fashioned into a mandible, whereas before it would be non-vital for over an hour before anastomosis. The whole kit was kindly donated by Synthes and Johnson & Johnson. The other innovation used was implantable dopplers from Cook Medical. These are placed on the anastomosed vessels to continuously monitor the inflow and outflow of the flap in real time. As far as we know, this type of procedure has never been performed before in Africa, let alone Ethiopia.

On arrival at the Facing Africa rehabilitation facility, we finally met Abel and his hopeful parents. We were invited to use a brand-new operating suite in the Myungsung MCM Korean Hospital. It was a long procedure of more than 11 hours during which there were many obstacles. Luckily, the neo-mandible fitted perfectly. Thanks to the highly skilled team, we eventually transferred Abel to the rudimentary ITU without a tracheostomy. The major advantage was that he did have a tongue, which I managed to mobilise and attach to his new jaw. He made remarkable progress and was soon transferred back to our ward to be cared for by our excellent team of experienced nurses.

After a week, he was transferred back to the charity’s rehabilitation facility to be cared for by our team of doctors and nurses. Even after we had returned to the UK, Abel continued to receive care, as did all other patients operated on during the mission. I am sent regular updates on his recovery via email, photographs or video clips. I can advise on any question or challenges there may still be.

Abel is now running around like any other five-year-old boy. He is growing, speaking and the NG tube has been removed. We achieved our initial treatment aims. He still has a long way to go, but I hope we can go on to reconstruct his upper lip and cheeks if he should desire it. I am planning to return in March 2016 on a non-surgical mission to see him and many other patients on whom we have operated over the last eight years. The aim of this is to get a deeper understanding of the values and beliefs of the people we treat.

I fell in love with Ethiopia many years ago and I am lucky to be involved with a charity that believes in holistic patient care. I am proud that we have a complication rate comparable to our work in the West. I have met and worked with many extraordinary people.

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