Surgeons have removed a man's appendix through his mouth in a radical world first. The pioneering operation - dubbed "cakehole surgery" - means no unsightly scars, and the patient was doing sit-ups three days afterwards.

Today, doctors released the first pictures of the bizarre-looking procedure on Jeff Scholz, which was undertaken using miniaturised surgical tools. It is hoped this new approach could slash waiting times, cut down on infection and reduce post-operative pain.

Doctors say Mr. Scholz, 42, an ex-US marine, has made a speedier recovery than he would have done with standard keyhole surgery. Surgeons at the University of California San Diego Medical Centre threaded tiny instruments, including a camera, down Mr. Scholz's throat. After emptying his stomach they cut into its lining to cut away the inflamed appendix. The rogue organ was placed in a bag and pulled back up through Mr. Scholz's stomach and throat and out of his mouth.

Amazingly, he was discharged after just 17 hours in hospital and claimed to be back at work the day after.

Mr. Scholz said: "I was eating pizza and doing sit-ups three days later. You'd think the way it was done, going through the stomach wall, I'd have stomach pains, but there was nothing." It is the first time the procedure has been publicly shown, although a team of Indian surgeons claim to have carried out a similar one.

Through-the-mouth surgery is still in the experimental stages, but surgeons are confident their new methods reduce the risk of infections like MRSA.

Centre director Professor Santiago Horgan said: "My dad was a surgeon and back then the larger the incision, the better the surgeon. Today we're moving away from that to minimise trauma. We can improve pain and complications."