What are stem cells and why are they promising for treating perianal fistulas?

Stem cells are a very simple kind of cell found in many parts of the human body. They have the unique ability to transform themselves into many other kinds of potentially useful cells. Stem cells have been used in regenerative medicine for many years and one of the best known uses is to provide healthy new white blood cells in conditions like leukemias, a cancer of the blood. Recently, doctors and scientists have realized that stem cells could also be very useful in the repair and reconstruction of damaged tissues and organs. Stem cells appear able to multiply rapidly, renew themselves and promote healing through suppressing inflammation in the areas surrounding them.

One of the challenges with using stem cells from donors has been that – like an organ transplant – the patient’s immune system can reject them as it recognizes they are ‘foreign’ – i.e. they come from somebody else. This has meant that doctors have had to extract stem cells from the patient themselves – or from suitable close relatives, which can be a slow and complicated process. However – it was recently discovered that some types of stem cells (like those taken from fat layers in the body) might not be entirely rejected by the immune system, making it possible to extract them from donors, culture them in large numbers in laboratories, and then use them as a treatment for many different patients without the concern of unwanted immune reactions.
Stem cells are seen as a potential new treatment approach in perianal fistulas because of their ability to dampen down the inflammation caused by Crohn’s Disease and help the healing and repair process. Donor stem cells have already been compared to a control treatment in 212 patients with perianal fistulas related to Crohn’s Disease in a European study. The results were promising and showed an improved efficacy in fistula healing and safety or side effects were comparable and there were not issues raised, with some patients being followed over one year after treatment. The procedure did not require a hospital stay and avoided the work leave required after standard surgery. To gain further evidence for the value of this approach, the ADMIRE-CDII Study is now testing the same approach in over 320 patients at more than 100 hospitals in the US, Canada, Europe and Israel.