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Daily news on ASX-listed biotechnology companies

Dr Boreham's Crucible: Orthocell

By TIM BOREHAM

ASX Code: OCC

Share price: 49 cents

Market cap: $92.5 million

Shares on issue: 188,757,482

Chief executive officer: Paul Anderson

Board: Dr Stewart Washer (chair), Mr Anderson, Matthew Callahan, Prof Lars Lidgren, Qi Xiao Zhou, Leslie Wise

Finances (September quarter 2020): receipts nil, operating cash outflows $1.5 million, cash of $18.9 million, quarters of available funding 13. (The company received a $2.3 million Federal Research and Development Tax Incentive in January)

Notable shareholders: Ming Hao Zheng (founder and chief scientific officer) 4.1%, Mr Anderson 3.8%.

Orthocell chief Paul Anderson has nothing against the use of a needle and thread and we dare say he could darn an old sock if he was pushed to do so.

The trouble is the suture method is still as much the standard-of-care for repairing delicate nerve damage as re-affixing a button - and the results are sub-standard.

"It's a primitive approach," Mr Anderson says. "You're trying to repair this delicate nerve tissue, yet you are pushing a needle through it 15 times in a two-hour operation.

“It’s extremely technically difficult to get the nerve endings to oppose together in the right way. As a result, the surgeons see a slow and unpredictable recovery.”

That’s the problem. Sew, what’s the solution?

A Perth-based regenerative medicines outfit, Orthocell has developed a biological collage membrane device, called Celgro.

Celgro initially was pitched at the surgical repair of bone and soft tissue, but after a recent trial involving quadriplegics the company has widened its horizons to nerve repair.

To date, 300 patients have been treated with Celgro under the regulator’s special access scheme, for nerve, tendon, cartilage and dental maxilla-facial procedures (teeth, jaw, bones and the face).

The company also has US, European and local approval to use Celgro in dental implant procedures (we’ll get our teeth into that topic further below).

Celgro explained

Mr Anderson describes Celgro as a “bioactive chamber” that protects nerves from outside influences, such as tissue that can cause scarring. The “customized conduit” also contains healing growth factors within the nerve site.

“Not only is it a very simple operative technique, we are combining a unique environment for the nerve to grow,” Mr Anderson says.

While the needle-and-thread remains the most common technique for nerve repair, other scaffold-type products act as conduits for the re-joined nerves to grow.

Mr Anderson argues because these devices are hard rigid tubes, the surgeons cannot go around ‘corners’ and it is difficult to feed the nerves into the pipes.

Hitting a nerve

So far, 19 patients have completed the nerve trial and the company is waiting for the last patient to reach the two-year mark.

Last November, Orthocell reported on the progress of 10 patients with peripheral nerve damage 24 months after treatment, compared with 12 months for the interim data.

The announcement focused on the six patients who were quadriplegics and likely to see the most benefit. The results showed that after 24 months, 17 of 19 nerve repairs (89 percent) restored voluntary movement to previously paralyzed muscles.

Patients reduced or stopped using pain medication 86 percent of the time.

“When we started the study, it was about peripheral nerves that had been severed or crushed,” Mr Anderson says. “With the early encouraging results, the surgeons explored the use of Celgro in treating quadriplegia with more complex injuries. Our treatment involves taking nerves from other areas of the body and replanting them into the damaged muscles and synapses of the paralyzed limbs.”

Carried out under the auspices of Dr Alex O’Bierne, of Subiaco’s Western Orthopaedic Centre, the study is being used to underpin an application for European and Australian approval for Celgro’s nerve indication.

Otherwise, the company has all the data it needs for regulatory purposes, but further data will be used for marketing and to justify reimbursement.

A planned further study will expand to east coast Australia and US surgeons.

Meet the star patient

Surgeons are commonly referred to as stars but the real ‘celebrity’ is 43-year-old father of three, Adrian Walsh, who was paralyzed after breaking his neck in a mountain bike mishap in 2017.

On ‘day zero’ Mr Walsh had minimum voluntary movement in his arms and could not perform tasks such as feeding himself. One year after the Celgro procedure, he can operate his own wheelchair, lift a glass to his mouth and use his mobile phone.

“He can also hug wife and children again,” Mr Anderson says.

“We are seeing not just daily living activities returning, but mental health improvement, which is extremely gratifying.”

Mr Anderson adds the procedure won’t help all quadriplegics, as most have to be treated within one to two years of injury before they lose too much muscle mass.

Because the surgery reconnects pectoral and lung nerves, patients need to be able to move their arms to a degree and to be able to breathe without assistance. This would have ruled out the late Superman actor Christopher Reeve, who lost the use of his lungs after becoming a quadriplegic as a result of falling off a horse in 1995.

Biting into the dental market

In a long-awaited breakthrough, the US Food and Drug Administration in January approved Celgro as a 510(k) device for dental bone and tissue regeneration procedures.

The Australian Therapeutic Goods Administration also approved Celgro for this indication in December last year. In November 2017, Orthocell obtained Conformité Européenne (CE) mark approval for use of Celgro for dental (bone) and facial (soft tissue) applications.

The company has dubbed the dental version of the device as ‘Striate+’. Why? Because they can.

“US approval has come sooner than expected and is a significant inflection point for the company,” Mr Anderson says.

The FDA opined that, based on surgeon feedback, the device had a “distinct advantage over other similar products.”

A key advantage is supporting one-step implants.

Orthocell is not talking to “multinational dental companies” about a US distribution deal.

Locally, the company is confident Striate+ will be included on the Prosthesis List - and thus funded by the public purse - by the middle of 2021.

Mr Anderson says while the Australian market is small and the company remains focused on the US, the local assent is still important.

“It resonates from an international perspective because we can demonstrate our paths to market. We are also an Australian company and we can get reimbursement fairly simply.”

Anyone for tennis elbow treatment?

Orthocell already has two cell-based, regenerative products, Ortho-ATI (autologous tenocyte implantation) and Ortho-ACI (autologous chondrocyte implantation).

(Autologous means healthy cells are taken from the patient’s own body, cultivated and re-inserted into the affected area).

Ortho-ACI is approved for use in Australia, New Zealand, Singapore and Hong Kong under good manufacturing practice protocols.

Ortho-ATI is used for tendon injuries such as rotator cuff injuries and tennis elbow, while Ortho-ACI is deployed for cartilage restoration in dodgy knees and ankles.

“Ortho-ATI is the first injectable cellular therapy in orthopaedics,” Mr Anderson says. “It’s an incredible product that has a non-surgical solution to a surgical approach that’s not efficient.”

But as it’s more of a drug than a device, it’s harder to get to market.

Orthocell’s website lists four clinical trials for Celgro and two for Ortho-ATI, covering tennis elbow and rotator cuff tear. The latter is sponsored by Johnson & Johnson arm De Puy Synthes Products, with final clinical data due this year.

The company intends to lodge an investigation new drug application with the US Food and Drug Administration this year.

Finances and performance

In late 2019, Orthocell's management sensed problems for global markets - financial woes rather than a pandemic - and moved to raise $14.4 million in a placement and share purchase plan at 50 cents apiece.

In hindsight, the management need not have been so pre-emptive, given the strong appetite for life science capital raisings in 2020.

But Mr Anderson says the smart money was exiting what appeared to be an over-inflated market well before the impact of Covid-19 became apparent.

"It's been a crazy market. No one would have predicted it would be so buoyant," he says. "But if I had my way, I would do the same again."

Mr Anderson says with circa $20 million in the bank the company is funded for the next two and a half years

Orthocell did not generate any revenue in the September quarter (the last one reported) but over time has garnered about $1 million from local and European sales of ATI and ACI, and Celgro sales under a special access scheme.

Orthocell shares fell to a low of 20 cents on March 23 last year, having peaked at 80 cents in August 2015.

The stock hit a near term high of 59 cents on the back of the FDA's Striate+ approval.

Sizing up the rivals

Orthocell draws comparisons with ASX-listed Perth counterpart Osteopore, which is using three-dimensional printing technology to produce bioresorbable implants for bone replacement.

Orthocell's preferred exemplar is Polynovo, given the latter also uses lattice-type device.

These days Polynovo's worth a hefty $2 billion, but at a similar point of development to Orthocell it was valued at Orthocell's current $100 million. Orthocell intends to take Polynovo's approach of deploying strong managers to oversee US distributors.

As with Polynovo, Orthocell has also applied for funding from the US disaster preparedness agency BARDA (Biomedical Advanced Research and Development Authority).

At this stage at least, Orthocell is developing Celgro off its own bat in order to add as much value to the program as it can.

Dr Boreham's diagnosis:

Orthocell was founded in 2016 by Mr Anderson and chief scientific officer Prof Ming Hao Zheng, former chief executive of cell therapist Verigen, and listed on the ASX in August 2014, having raised $8 million at 40 cents a share.

So, the company has been around for a while, with only a modest valuation uptick. But given the near-term potential of the dental market and the game-changing scope of Celgro for nerve repair, we feel that Orthocell finally is hitting its stride.

Mr Anderson says whether you're talking about tendons, nerves or soft tissues, surgeons increasingly appreciate a biologic adjunct in the healing process.

"Even with just the ability to make a procedure shorter, you have a gangbuster product," he says of Celgro. "But if you can also quicken the pace of recovery and improve the result, you have a very serious product of serious value."

Mr Anderson says while the older Ortho-ACI and Ortho-ACI have clear market positions, Celgro is the company's "genuine platform technology".

Nerve repair is a "massive indication" worth $7.5 billion a year, with two million nerve repair procedures done, annually.

The tendon/ligament market is worth $US1.4 billion ($AUD1.8 billion) and bone regeneration $US1 billion, with the US dental market worth $US500 million, a year.

"Celgro stands head and shoulders in handling characteristics and healing qualities over the competition," he says.

"This is going to be the game changer and the company maker for us."

Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. But he's not bad with a needle and thread, darn it.