

Going Green - The Natural Way
Using Plant Stem Cells

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Introduction

Moist wound healing has been proven to heal the majority of chronic wounds at minimal cost to the health system. *Posnett* et al (2008) showed that over 80% of chronic wounds would heal within a predicted timeframe at an average cost to the system of around £1900, whilst a small number of wounds prove hard to heal costing between £31,000-£42,000 to heal.

In 2014, we were approached by Genadyne Pharma to try their new product Nanogen Aktiv. The challenge was to use it on our most difficult wounds. Once we had tried the product and saw that it stimulated the healing of a very difficult 'static' wound, we decided to expand the usage and to undertake an evaluation on an initial TEN patients which was then extended to TWENTY patients, all with HARD TO HEAL chronic or complex wounds.

Nanogen is a plant based collagen, manufactured from plant stem cells, that has the ability to mimic the Extra Cellular Matrix (ECM) in the wound. Nanogen functions in the same way as other collagen based products to stimulate fibroblast and cellular migration and encourage the deposition of newly formed tissue ie granulation. The other components in Nanogen Vitamin B,C,D,E,K: Biotin and Folic acid are used as enzyme substrates that are catalysts in many biochemical processes in the healing of wounds. Because of the nano size particles there is an added benefit of cell signalling to the natural microcellular environment.

Patient Stories



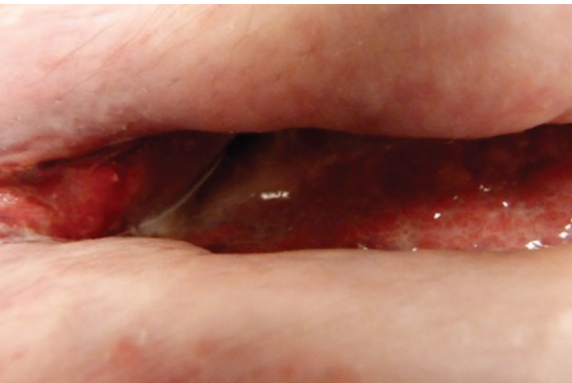
Venous Ulcer (+2 year duration) Graduated compression and appropriate primary dressing Deep edges, dry scaly friable peri skin, dry wound bed.



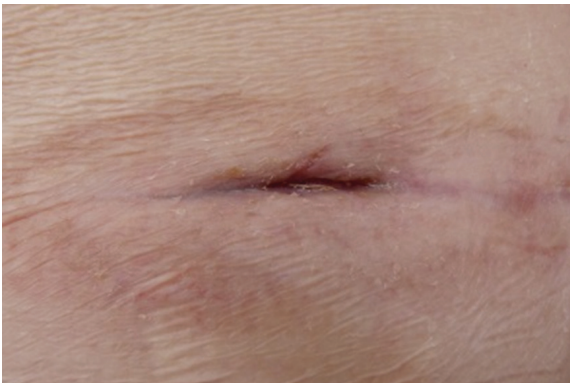
Week 3 Wound showed improvement, change in shape, peri wound condition (where the product had been applied) and reduction in exudate.



Week 11 Healing achieved, with good surrounding skin condition. The Aktigel was used after healing to remove the last of the flaky skin.



Dehiscent nephrectomy wound for Ca Kidney. Patient continued having Chemotherapy at time of evaluation. Wound healing was achieved in 5 weeks with Nanogen Aktiv (membrane) and Aktigel (gel) only.



The Results

We calculated the cost to treat these wounds with one OPD appointment per week (£84 plus dressing costs) and one dressing change, by the community nursing team (£55 per visit plus dressing costs), per week. (*PSSRU 2014*)

Wound Type	Wound Duration (weeks)	Traditional costs(To date)	Weeks to healing	Total cost to heal (£)	Saving (£)
Neuropathic ulcer	104	15496	16	2096.0	13400.0
Venous leg ulcer	26	3874	16	3258.0	616.0
Venous leg ulcer	52	7748	20	3620.0	4128.0
Neuropathic ulcer	60	8940	5	649.0	8291.0
Neuroischaemic ulcer	104	15496	20	2820.0	12676.0
Mixed wound type	100	14900	16	2224.0	12676.0
Dehisced wound	30	4470	12	1943.0	2527.0
Venous leg ulcer	104	15496	8	1096.0	14400.0
Venous leg ulcer	28	4172	8	1196.0	2976.0
Mixed aetiology leg ulcer	104	15496	stopped	0.0	
Dehisced wound	208	30992	12	10196.0	20796.0
Trauma	208	30992	Stopped (nearly healed)		
Dehisced wound	17	2533	11	2215.0	318.0
Venous leg ulcer	24	3576	9	1347.0	2229.0
Venous leg ulcer	104	15496	9	1053.0	14443.0
Traumatic cavity	26	3874	9	1053.0	2821.0
Venous leg ulcer	150	22350	11	1856	20494
Venous leg ulcer	28	4172	14	1734.0	2438.0
Kidney cancer	6	894	0	900	(194)
Breast Mesh	16	2384	6	987	1397
Average	75 weeks	11168	11	1736	9432

Discussion

The application of Nanogen Aktigel to the Peri-wound area resulted in a pinker, healthier, more robust peri-skin.

Even after just one week of treatment with Nanogen Aktiv the wound usually changes in colour, size and increase in exudate, giving confidence that the wound is responding to the treatment, even in wounds that have been static for months. The patient can also see this obvious improvement.

After the first application of Nanogen Aktiv membrane most patients reported a rapid reduction in wound pain. So much so that many patients requested to continue with the Nanogen Aktiv treatment fearing that wound pain would return. Word spread quickly through the clinic so that other patients attending the clinic started to ask for **“the magic paper”**.

Conclusion

Nanogen Aktiv does have a significant effect on kick starting HARD TO HEAL (NON HEALING) wounds, that previously had a history of only being maintained. It mimics the wound ECM and stimulates epithelialisation and improves inter cellular signalling/communication, both of which have been shown to be critical in stimulating the healing of stalled chronic wounds. It is unequivocally cost effective, healing wounds as opposed to maintaining wounds.

In practice we have found that a two week course of Nanogen Aktiv followed by the Nanogen Aktigel proves most effective for healing with the added benefits of a better cosmetic result. It improves patient concordance by reducing pain and providing hope to patients who have endured these chronic wounds for excessive periods of time. This has a massive positive impact on the quality of life of these patients.

If you have problem with non-healing chronic wounds, why not give the magic paper a try?!!