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The add on effect of Platelet Rich Plasma in management of Dushtavrana: A Case Study

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ABSTRACT

Wound management principles laid by Acharya Susrutha the father of surgery and the current practice of surgery emphasizes the cosmetic repair of wounds with utmost efficacy. The concept of *Shashtirupakrama* mentioned by Acharya Susrutha is focused on the *Shodhana* and *Ropana* line of management. Platelet-rich plasma (PRP) has been researched and used in various fields of medicine focused on cell-based therapy and tissue engineering. This is a single case study on the management of *Dushtavrana* focusing on the add-on effect of PRP therapy with classical wound management protocol.

INTRODUCTION

A surgeon's success is not solely determined by the precision of the surgical procedure, but also by the effective management of the resulting wound. Acharya Sushruta, revered as the Father of Surgery, emphasized the critical importance of wound care, detailing the Shashti Upakrama—a comprehensive set of sixty measures for the management of wounds (Vrana). Interestingly, many of these principles align closely with contemporary surgical wound management strategies. Sushruta also placed notable emphasis on the aesthetic outcome of wound healing, recognizing the value of cosmetic restoration.

Wound healing is a complex biological process involving three overlapping phases: inflammation, proliferation, and remodeling. In recent years, Platelet-Rich Plasma (PRP) has garnered significant attention across various medical disciplines due to its potential in cell-based therapy and tissue engineering. Autologous PRP has demonstrated promising results in enhancing skin wound healing by modulating local inflammation, promoting angiogenesis, and accelerating re-epithelialization. PRP is rich in growth factors and cytokines that potentiate the body's intrinsic regenerative mechanisms.

This article presents a clinical case study evaluating the efficacy of autologous PRP in the management of Dushta Vrana (chronic or non-healing wounds). The case involves a postoperative wound following a wide excision of a pilonidal sinus. On the seventh postoperative day, the wound was clinically categorized as Dushta Vrana and subsequently treated with autologous PRP dressings alongside standard postoperative care.

CASE REPORT

A 31-year-old male patient came to the OP Department of Salyatantra, Parul University with complaints of a small nodule in the natal cleft with pain and pus discharge for 1 month.

History of Present Illness

As per the statement given by the patient, she was apparently normal for 1 month. Thereafter she developed recurrent boil intermittently in the natal cleft. She also complained of pain and itching over boil, and discomfort after prolonged sitting.

History of previous illness

Not a known case of Diabetes mellitus, hypertension, thyroid dysfunction, or any other chronic illness.

Personal History

Diet: Mixed
Appetite: Normal
Sleep: Sound, 6-7 hours.
Micturition: Normal, 5-6 times/day.
Bowel: once in a day, normal.
Addictions: Nil
Allergies: Nil

General Examination

Built - Moderate
Temperature - 97.8°F
Pulse Rate - 78BPM
Respiration Rate -19 cycles/min

Blood Pressure -130/80 mmHg
Nourishment - Moderate
No evidence of cyanosis/koilonychia

Local Examination

Inspection

A pimple-like lesion was noted over the natal cleft with pus discharge.
The area was hairy and purulent discharge was noted at the base of the hair follicle.
Localized swelling and redness were noted

Palpation

Localized rise in temperature noted.
Tenderness ++
Induration++

Probing

Done through the external opening a sinus tract measuring about 3 cm was found.

INVESTIGATION

Routine Blood investigations, LFT, RFT, and Diabetic profile were within normal limits. HIV, HBsAg, HIV, and VDRL were negative. Chest X-ray was normal.

PROCEDURE DONE

After obtaining written informed consent the patient was subjected to preoperative assessments.
The patient was kept in the prone position. The sacrococcygeal region was painted with an antiseptic solution (10% Povidone iodine) and drape sheets was applied over the operative area.
The operative site was anesthetized with the infiltration of inj. 2% Xylocaine.
After achieving appropriate anesthesia, the copper probe was inserted from the external opening, and the track measuring approximately 3cm was identified.
An elliptical incision was created and the flap including the sinus was excised completely.
Bleeders were managed with Agni karma (electro-cauterization). Hairs and unhealthy granulation tissue were removed. After that Kshara Karma was done. Hemostasis was achieved and wound dressing was done with Jathyadi ghritha. The patient was discharged after an observation for 2 hours.
Triphala KashayaKshalana and regular dressings with *Jathyadi ghritha* were advised along with internal medications.
From the 7 th day postoperatively the wound was subjected to PRP therapy.

The procedure of PRP therapy

PRP isolation: Autologous PRP was obtained by venipuncture and aspiration of 10 ml of patients' peripheral venous blood. The collected whole blood was subjected to centrifugation at 1500 rpm for 5 minutes. From the isolated PRP 4ml was applied via insulin syringe around the wound edges and the remaining approximately 2 ml was used as wound dressing.
The wound was cleaned with normal saline and dried well with sterile gauze. PRP was injected into the wound margins using an insulin syringe and used a dressing material over the wound and bandaged with a sterile pad and gauze. This was repeated every 7 days for 4 weeks and an assessment was done.

Internal Medications

Gandhaka Rasayanam (1 TID daily after food)
Triphala Guggulu (1 TID daily after food)
Guggulu Panchapala Tab(1 BD daily after food_)
Vasulax Tab (1 Tab at bedtime)

RESULT

The complete healing of the wound with healthy scaring occurred in a duration of
6 weeks. After PRP therapy the healing rate was faster and there was the formation of healthy granulation tissue.

Assessment parameters	Day 1 (Post surgery)	Day 7 (Before PRP)	Day 30 (After PRP)
Discharge	++++	+++	Nil
Size of ulcer (length X breadth in cms)	5.55 × 3.01	5.07 × 2.72	0.18 × 0.73
Pain (VAS scale)	Grade 4	Grade 3	Nil
Itching sensation	++++	+++	+

Fig.1.Day 7

Fig2. Day 15

Fig. 3 Day 30

DISCUSION

The application of plasma-derived products in both surgical and non-surgical specialties has been under continuous investigation since the 1960s. Recent systematic reviews, meta-analyses, and randomized controlled trials have highlighted the potential of autologous platelet-rich plasma (PRP) in enhancing wound healing. The primary advantages of PRP lie in its autologous origin, which reduces immunogenic risks and supports safety. However, there remains a significant need for standardized protocols regarding the preparation, concentration, and application techniques of PRP to ensure consistent therapeutic outcomes. Future research should aim to address these variations through well-designed multicenter trials.

CONCLUSION

PRP therapy is grounded in the principle that platelet-derived growth factors facilitate all three phases of the wound healing cascade—namely, inflammation, proliferation, and remodeling. Evidence supports its role in accelerating tissue repair and reducing healing time in clinical wound management. Integrating traditional therapeutic wisdom with contemporary biomedical innovations such as PRP can open promising avenues in regenerative medicine. Nonetheless, larger-scale, controlled studies are essential to establish definitive clinical guidelines and validate the efficacy of PRP across diverse patient populations.

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