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EFFICACY OF PLATELET-RICH PLASMA NASAL PACKING IN ENDOSCOPIC SINUS SURGERY: A PROSPECTIVE RANDOMISED CONTROLLED SPLIT-NOSE STUDY

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ABSTRACT

Background: Mucosal re-epithelialisation after functional endoscopic sinus surgery (FESS) determines long-term surgical success, yet conventional nasal packing does little to promote it. Platelet-rich plasma (PRP) is an autologous concentrate of growth factors with established pro-healing, angiogenic and anti-inflammatory activity.

Objective: To evaluate the efficacy of PRP-impregnated nasal packing on post-operative mucosal healing, bleeding, crusting, infection and synechiae formation after FESS for chronic rhinosinusitis (CRS).

Methods: A prospective randomised controlled split-nose trial was conducted on 63 patients aged 18–60 years with medically refractory CRS and a Lund–Mackay score above 8. In each patient, one nasal cavity was packed with a PRP-impregnated pack and the contralateral cavity with a saline-impregnated pack, allocated by an alternate-sequence method, so that every patient served as his or her own control. Packs were removed at 48 hours by a single blinded endoscopist. Sides were graded using the Lund–Kennedy endoscopic score at weeks 1, 2, 4 and 8, and SNOT-22 was recorded before surgery and at week 8. Paired comparisons used the Wilcoxon signed-rank and McNemar exact tests.

Results: Lund–Kennedy scores were significantly lower on the PRP side at every visit. At week 8 the PRP side scored 0.76 ± 0.71 versus 1.35 ± 0.74 on the saline side (mean difference 0.59, 95% CI 0.38–0.79; $p < 0.001$; Cohen's $d = 0.81$). At 48-hour pack removal the PRP side showed less bleeding (1.29 ± 0.73 vs 1.86 ± 0.69; $p < 0.001$), less crusting (23, 36.5% vs 46, 73.0%; $p < 0.001$) and less pain (1.16 ± 0.65 vs 1.76 ± 0.64; $p < 0.001$). Crusting was significantly reduced on the PRP side from week 2 onwards, and synechiae at week 8 occurred in 3 sides (4.8%) on the PRP side versus 11 (17.5%) on the saline side ($p = 0.039$). Infection rates did not differ. SNOT-22 improved from 54.5 ± 9.5 to 22.7 ± 5.2 (mean reduction 31.9 points; $p < 0.001$).

Conclusion: PRP-impregnated nasal packing is a safe, inexpensive, autologous adjunct that accelerates mucosal healing and significantly reduces bleeding, crusting, pain and synechiae formation after endoscopic sinus surgery, without increasing infective risk.

KEYWORDS: Platelet-rich plasma; Endoscopic sinus surgery; Chronic rhinosinusitis; Nasal packing; Lund–Kennedy score; Synechiae; Wound healing

INTRODUCTION

Chronic rhinosinusitis (CRS) is a persistent inflammatory disorder of the nose and paranasal sinuses defined by at least twelve weeks of nasal obstruction, nasal discharge, facial pain or pressure and hyposmia, supported by endoscopic or computed tomographic evidence of mucosal disease. It affects roughly one in ten adults and imposes a quality-of-life burden rivalling that of chronic cardiopulmonary disease [1]. When maximal medical therapy fails, functional endoscopic sinus surgery (FESS) restores ventilation and mucociliary drainage by re-establishing patency of the osteomeatal complex. Technical success, however, is only the first determinant of outcome; what decides whether the sinuses remain ventilated is the quality of mucosal re-epithelialisation in the weeks that follow.

The post-operative cavity is a raw, inflamed surface that heals through a predictable sequence of clot organisation, granulation, ciliated epithelial regeneration and remodelling. When this sequence is disturbed, fibrin bridges between the middle turbinate and the lateral nasal wall organise into synechiae, ostia stenose, and the disease recurs. Adhesions alone are implicated in nearly a third of failures in large surgical series [2]. Nasal packing is therefore used almost universally after FESS to secure haemostasis, stabilise the middle turbinate and act as a physical spacer. Yet packing is an essentially passive device: a pooled analysis of eighteen randomised trials found that middle meatal packing did not significantly reduce the risk of synechiae formation, and packing materials themselves may provoke a foreign-body reaction, discomfort and mucosal trauma at removal [3]. No widely adopted packing strategy therefore actively promotes healing rather than merely occupying space.

Platelet-rich plasma (PRP) offers a biologically plausible answer. Prepared by differential centrifugation of the patient's own blood, PRP is an autologous plasma fraction containing a platelet concentration several times that of whole blood

[4]. On activation, its alpha granules release platelet-derived, transforming, vascular endothelial, epidermal and insulin-like growth factors, together with fibrin, fibronectin and vitronectin, which form an adhesive scaffold for migrating cells. These mediators accelerate angiogenesis, fibroblast and epithelial proliferation and collagen remodelling, while damping the early inflammatory response [5]. Because PRP is autologous, it carries no risk of transmissible infection or immune rejection, and it has been applied across otolaryngology — in tympanic membrane repair, vocal fold scarring and facial plastic surgery — with an encouraging safety record [6]. Impregnating a conventional nasal pack with PRP therefore converts an inert spacer into a sustained local reservoir of growth factors delivered exactly where healing is required. This study was undertaken to evaluate the efficacy of PRP nasal packing in endoscopic sinus surgery, specifically to assess its effect on post-operative bleeding, crusting, infection and synechiae formation, and to evaluate the mucosal healing process against a saline-packed control within the same patient.

MATERIALS AND METHODS

This prospective randomised controlled split-nose trial was conducted in the Department of ENT and Head and Neck Surgery, Madha Medical College and Research Institute, Kovur, Chennai. The Institutional Ethics Committee approved the protocol, and written informed consent was obtained from every patient in their mother tongue.

Patients aged 18 to 60 years with chronic rhinosinusitis, with or without nasal polyps, diagnosed by the criteria of the European Position Paper on Rhinosinusitis and Nasal Polyps [7], were screened. Those included had symptoms for at least twelve weeks comprising two or more of nasal obstruction, nasal discharge, facial pain or pressure and loss of smell, at least one being obstruction or discharge; had failed medical management; and had a Lund–Mackay score above eight [8]. Immunocompromised patients and those with bleeding disorders, previous nasal surgery, granulomatous sinonasal disease, uncontrolled diabetes or chronic steroid use for unrelated conditions were excluded. Patients with unilateral disease were also excluded, since the design requires a diseased cavity on each side, so every participant had bilateral disease.

The sample size was derived from hypothesis testing for two means, assuming standard deviations of 0.77 and 0.83, a mean difference of 0.40, an effect size of 0.5, a 5 per cent alpha error, 80 per cent power and a two-sided test, giving a requirement of 63. Sixty-three patients therefore contributed 63 PRP-packed and 63 saline-packed sides.

Every patient underwent history, clinical examination, diagnostic nasal endoscopy and computed tomography of the nose and paranasal sinuses, staged by the Lund–Mackay system with each side scored 0 to 12. SNOT-22 was administered before surgery [9]. Surgery was performed under general anaesthesia, the extent of dissection being tailored to the disease. Immediately beforehand, 20 millilitres of venous blood were collected into anticoagulant-coated tubes and processed by a dual-spin technique: a soft spin at 200 relative centrifugal force for twelve minutes, after which the plasma and buffy coat were aspirated and given a hard spin at 1600 relative centrifugal force for eight minutes. The platelet-poor supernatant was discarded, yielding approximately 5 millilitres of PRP, and platelet concentration was verified on an automated haematology analyser.

Both cavities were then packed with identical polyvinyl acetal (Merocel) packs. The PRP side was allocated by an alternate-sequence method: odd-numbered patients received PRP on the right and even-numbered patients on the left, the opposite pack being impregnated with an equal volume of sterile normal saline. The packs were visually identical and the patient did not know which side had been treated. A single endoscopist, blinded to allocation, removed both packs at 48 hours and performed every subsequent grading, eliminating inter-observer variation.

At pack removal, bleeding and pain were graded for each side as none, mild, moderate or severe, and crusting was recorded as present or absent. Patients returned at weeks 1, 2, 4 and 8, when each cavity was graded separately by the Lund–Kennedy system, in which polyps, mucosal oedema and discharge are each scored 0 to 2, giving a total of 0 to 6 per side, a lower score indicating better healing [10]. Bleeding, crusting, infection and synechiae were recorded for each side as present or absent, synechiae being carried forward once formed. SNOT-22 was repeated at week 8, together with a global assessment of healing and of improvement.

Data were analysed using SPSS v26.0. Continuous variables are presented as mean ± standard deviation and categorical variables as frequencies with percentages. A p value below 0.05 was considered statistically significant.

RESULTS

All 63 patients completed the full eight-week follow-up, with no withdrawals and no losses, giving 63 paired within-patient comparisons. No pack required removal before 48 hours and there was no adverse reaction attributable to PRP.

Table 1. Baseline demographic and clinical characteristics of the study population (n = 63).

Variable	Value
Number of patients	63
Age, years (mean ± SD)	37.5 ± 9.8
Age range, years	18 – 60
18–30 years, n (%)	18 (28.6)
31–45 years, n (%)	31 (49.2)
46–60 years, n (%)	14 (22.2)
Male, n (%)	37 (58.7)
Female, n (%)	26 (41.3)
Symptom duration 12-24 weeks, n (%)	13 (20.6)
Symptom duration 25-52 weeks, n (%)	30 (47.6)

Symptom duration >52 weeks, n (%)	20 (31.7)
Nasal obstruction, n (%)	62 (98.4)
Nasal discharge, n (%)	53 (84.1)
Post-nasal drip, n (%)	47 (74.6)
Facial pain / pressure, n (%)	42 (66.7)
Headache, n (%)	37 (58.7)
Olfactory impairment (hyposmia or anosmia), n (%)	44 (69.8)
Anosmia, n (%)	11 (17.5)
Allergic rhinitis, n (%)	20 (31.7)
Bronchial asthma, n (%)	13 (20.6)
Current or former smoker, n (%)	20 (31.7)
Any comorbidity (controlled DM / HTN / thyroid), n (%)	28 (44.4)
CRS without nasal polyps, n (%)	40 (63.5)
CRS with nasal polyps, n (%)	23 (36.5)
Lund–Mackay total score (mean ± SD)	14.90 ± 3.44
Lund–Mackay total score, range	9 – 22
Lund–Mackay score, PRP side (mean ± SD)	7.56 ± 2.27
Lund–Mackay score, saline side (mean ± SD)	7.35 ± 1.96 (p = 0.51)
Pre-operative SNOT-22 score (mean ± SD)	54.52 ± 9.47

The mean age was 37.5 ± 9.8 years and 37 of 63 patients (58.7 per cent) were male. Nasal obstruction and nasal discharge were the commonest complaints, olfactory impairment was frequent, and 23 patients (36.5 per cent) had nasal polyps. The mean Lund–Mackay score of 14.90 ± 3.44 confirms extensive bilateral disease. Importantly, the side later packed with PRP and the side packed with saline had similar baseline Lund–Mackay scores (p = 0.51), so the two cavities started out comparable and later differences cannot be explained by unequal disease severity.

Table 2. Lund–Kennedy endoscopic scores on the PRP-packed and saline-packed sides at each follow-up visit (primary outcome).

Time point	PRP side (mean ± SD)	Saline side (mean ± SD)	Mean difference (95% CI)	Cohen's dz	p value
Week 1	3.17 ± 0.85	3.67 ± 0.76	0.49 (0.29 to 0.69)	0.61	< 0.001
Week 2	2.59 ± 0.89	3.25 ± 0.90	0.67 (0.45 to 0.88)	0.77	< 0.001
Week 4	1.59 ± 0.80	2.19 ± 0.72	0.60 (0.41 to 0.80)	0.78	< 0.001
Week 8	0.76 ± 0.71	1.35 ± 0.74	0.59 (0.38 to 0.79)	0.72	< 0.001
Week 8 sub-scores					
Polyp score	0.11 ± 0.36	0.08 ± 0.27	-0.03 (-0.13 to 0.07)	-0.08	0.527
Mucosal oedema score	0.37 ± 0.52	0.76 ± 0.59	0.40 (0.22 to 0.58)	0.56	< 0.001
Discharge score	0.29 ± 0.55	0.51 ± 0.62	0.22 (0.03 to 0.41)	0.30	0.023

A lower score indicates better mucosal healing (range 0–6 per side). Mean difference = saline side minus PRP side; a positive value favours PRP.

The PRP side scored lower at every visit. At week 8 it averaged 0.76 ± 0.71 against 1.35 ± 0.74 on the saline side, a difference of 0.59 points (95% CI 0.38 to 0.79; p < 0.001). The gap was widest at week 2. The week-8 sub-scores show that the benefit came from less mucosal oedema and less discharge, not from any difference in polyps, indicating an effect on healing rather than on the underlying inflammation.

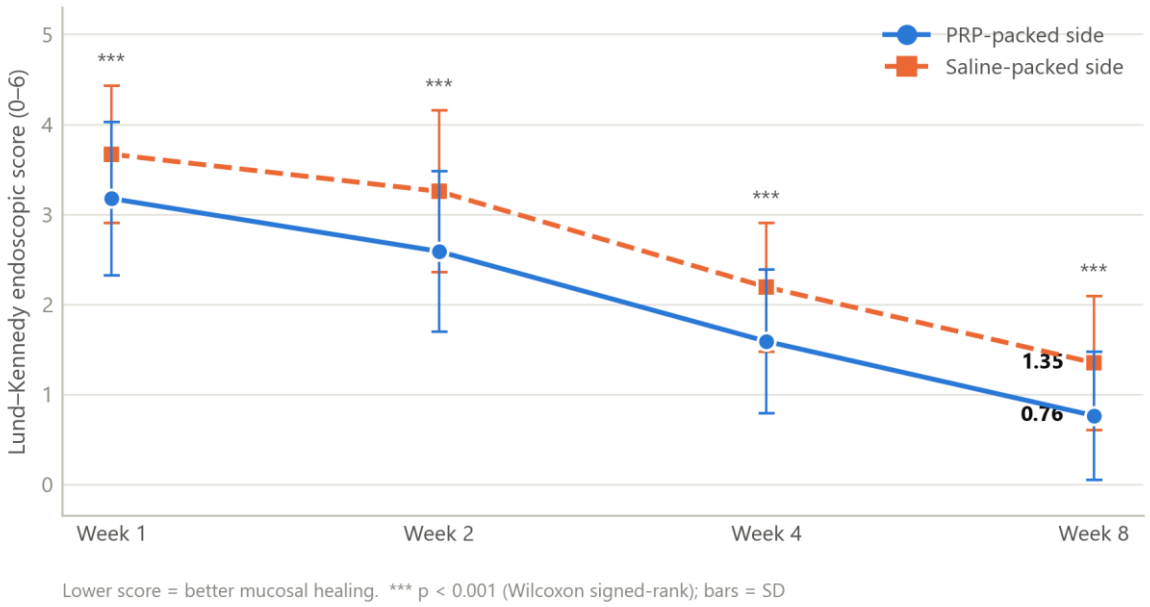

Figure 1. Trajectory of the mean Lund–Kennedy endoscopic score on the PRP-packed and saline-packed sides over the eight-week follow-up period

Both cavities improved steadily, but the two curves never met. The PRP side stayed ahead throughout, falling below a Lund–Kennedy score of 2 — the point at which the cavity is essentially clean and epithelialised — by week 4, a level the saline side reached only at week 8.

Table 3. Outcomes assessed at the time of nasal pack removal, 48 hours after surgery.

Parameter	PRP side	Saline side	Test	p value
Bleeding grade (0–3), mean ± SD	1.29 ± 0.73	1.86 ± 0.69	Wilcoxon	< 0.001
None, n (%)	9 (14.3)	0 (0.0)	—	—
Mild, n (%)	28 (44.4)	20 (31.7)	—	—
Moderate, n (%)	25 (39.7)	32 (50.8)	—	—
Severe, n (%)	1 (1.6)	11 (17.5)	—	—
Moderate or severe bleeding, n (%)	26 (41.3)	43 (68.3)	McNemar	0.005
Crusting present, n (%)	23 (36.5)	46 (73.0)	McNemar	< 0.001
Pain during pack removal (0–3), mean ± SD	1.16 ± 0.65	1.76 ± 0.64	Wilcoxon	< 0.001
Moderate or severe pain, n (%)	15 (23.8)	43 (68.3)	McNemar	< 0.001

Bleeding and pain graded 0 = none, 1 = mild, 2 = moderate, 3 = severe.
Bleeding at pack removal was lower on the PRP side (1.29 ± 0.73 versus 1.86 ± 0.69; $p < 0.001$), and moderate or severe bleeding occurred in 26 PRP sides (41.3 per cent) against 43 saline sides (68.3 per cent; $p = 0.005$). Crusting was present in 23 PRP sides (36.5 per cent) against 46 (73.0 per cent; $p < 0.001$). Removal was also less painful on the PRP side (1.16 ± 0.65 versus 1.76 ± 0.64; $p < 0.001$). Since both packs came out at the same sitting in the same patient, this difference in pain is unaffected by individual pain threshold.

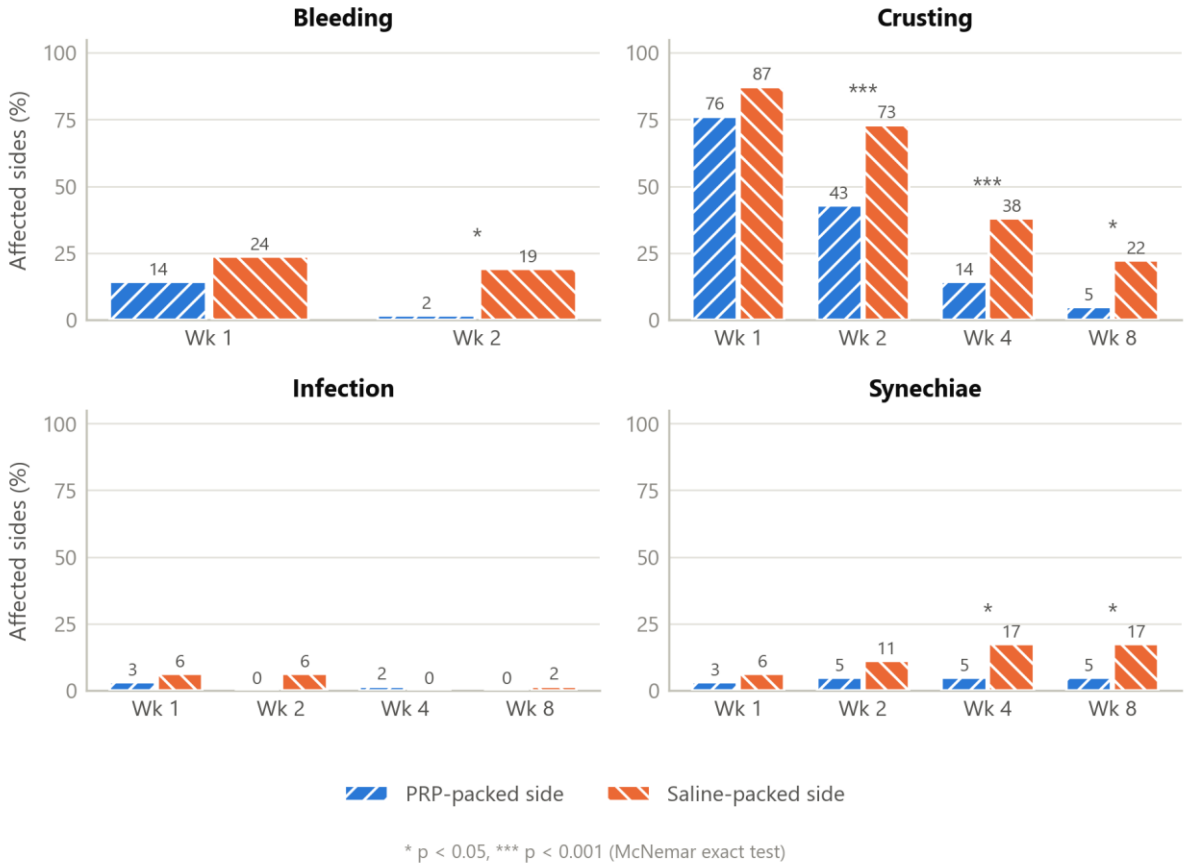

Figure 2. Post-operative complication rates on the PRP-packed and saline-packed sides at each follow-up visit, expressed as the percentage of sides affected. All four panels share a common vertical scale.

Crusting was near-universal in week 1 but cleared faster on the PRP side, persisting at week 2 in 27 PRP sides (42.9 per cent) against 46 saline sides (73.0 per cent; $p < 0.001$) and at week 8 in 3 (4.8 per cent) against 14 (22.2 per cent; $p = 0.007$). Synechiae accumulated on the saline side to 11 sides (17.5 per cent) by week 4 and remained there, against 3 PRP sides (4.8 per cent; $p = 0.039$) — a relative reduction of about 73 per cent. Late bleeding was uncommon, but at week 2 it persisted in 12 saline sides (19.0 per cent) against 1 PRP side (1.6 per cent; $p = 0.003$). Infection was rare and never differed significantly between the sides.

Table 4. Quality-of-life outcome and global clinical assessment at eight weeks (n = 63).

Variable	Value
Pre-operative SNOT-22 (mean ± SD)	54.52 ± 9.47
SNOT-22 at 8 weeks (mean ± SD)	22.65 ± 5.23
Mean reduction (95% CI)	31.87 (29.93 to 33.82)
Paired t test	$t = 32.81$, $p < 0.001$
Effect size (Cohen's dz)	4.13
Patients exceeding MCID (> 8.9 points), n (%)	63 (100.0)
Overall healing at 8 weeks, n (%)	
Excellent	15 (23.8)
Good	35 (55.6)
Moderate	11 (17.5)
Poor	2 (3.2)
Overall improvement vs pre-operative status, n (%)	
Markedly improved	36 (57.1)
Moderately improved	23 (36.5)
Mildly improved	4 (6.3)
No improvement	0 (0.0)
Complication requiring additional treatment, n (%)	17 (27.0)

SNOT-22 = 22-item Sino-Nasal Outcome Test, scored 0–110 with higher scores indicating worse disease-specific quality of life; MCID = minimal clinically important difference. SNOT-22

SNOT-22 fell from 54.52 ± 9.47 before surgery to 22.65 ± 5.23 at eight weeks, a mean reduction of 31.9 points (95% CI 29.9 to 33.8; p < 0.001), and every patient exceeded the minimal clinically important difference of 8.9 points. Healing was rated excellent or good in 50 of 63 patients (79.4 per cent) and 59 (93.7 per cent) felt markedly or moderately improved. Additional treatment — endoscopic division of synechiae, a short course of oral antibiotics, or both — was required by 17 patients (27.0 per cent).

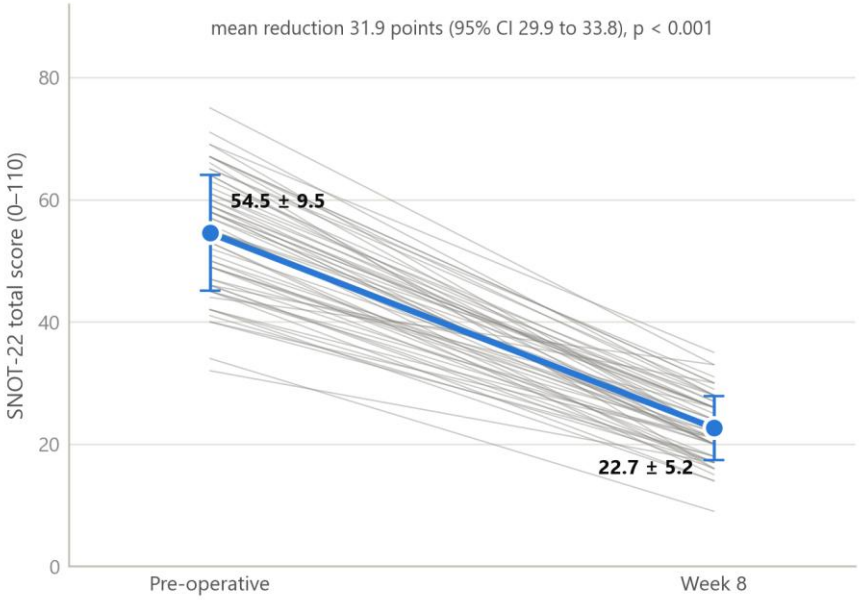

Figure 3. Paired change in SNOT-22 score from the pre-operative assessment to week 8. Each grey line represents one patient; the heavy blue line is the cohort mean with one standard deviation.

Every patient improved and none deteriorated, so the gain was consistent rather than driven by a few large responders. SNOT-22 is answered about the nose as a whole, so this improvement reflects the surgery and cannot be divided between the two cavities; it is reported to show that the operation worked, not as evidence for PRP.

DISCUSSION

The aim of this study was to evaluate the efficacy of platelet-rich plasma as a nasal packing material after endoscopic sinus surgery, with specific objectives of assessing bleeding, crusting, synechiae formation and infection, and of evaluating the healing process itself. Addressing the principal objective first, PRP-impregnated packing produced significantly better endoscopic healing than saline packing at every post-operative visit, with a week-8 Lund–Kennedy difference of 0.59 points and a standardised effect size of 0.81. This sits comfortably within the range reported by the most recent quantitative synthesis of the field: a meta-analysis of six randomised trials involving 169 patients found a pooled standardised mean difference in post-operative nasal endoscopy scores of −1.19 (95% CI −1.94 to −0.44; p = 0.002) favouring PRP [11]. Our effect is towards the conservative end of that confidence interval, which is expected, since a split-nose design removes the between-patient variation that inflates effect sizes in parallel-group trials and additionally risks a systemic or diffusional carry-over of growth factors to the control cavity, which would bias the observed difference towards the null. A more recent synthesis of nine randomised trials in 488 participants similarly concluded that PRP significantly improves mucosal healing and consistently reduces post-operative pain, scarring, bleeding, crusting and oedema [12].

Our findings on the immediate peri-operative objectives closely replicate those of Kuzucu and colleagues, who also used a split-nose design in which one cavity received a PRP-impregnated Merocel pack and the other a saline-impregnated pack, and who reported significantly less bleeding and crusting on the PRP side [13]. Where our results diverge is in pain: Kuzucu et al. found no statistically significant difference in visual analogue pain scores, whereas we found a clear reduction in pain at pack removal (1.16 versus 1.76; p < 0.001). The most probable explanation is mechanical rather than pharmacological. Pain at pack removal is largely a function of how firmly the pack has become adherent to the raw mucosa and of how much fresh bleeding removal provokes; the PRP side in our series bled substantially less and was less crusted, and a less adherent pack is a less painful one. The earliest clinical reports of platelet concentrates in this setting pointed in the same direction, Pomerantz and Dutton having observed no post-operative epistaxis requiring packing, no synechia formation and no granulation tissue in their platelet gel series [14].

Synechiae formation was the objective of greatest clinical consequence, and here the difference was both statistically significant and clinically meaningful: 4.8 per cent of PRP-packed cavities versus 17.5 per cent of saline-packed cavities at eight weeks (p = 0.039), a relative reduction of roughly 73 per cent. The magnitude of the control-side rate is entirely consistent with the published literature; Ramadan, reviewing 682 endoscopic sinus operations, found adhesions to be implicated in 30.7 per cent of surgical failures [2], and Bugten and colleagues in a randomised trial found bilateral adhesions at twelve weeks in nine control patients compared with one in the intervention arm (p < 0.001) [15]. What

makes our result notable is the comparison with packing alone: the pooled analysis by Hobson and colleagues, encompassing eighteen randomised trials and 925 subjects, found that middle meatal packing reduced synechiae only marginally and non-significantly (RR 0.544; p = 0.052) [3]. A pack that merely occupies the middle meatus, in other words, does not reliably prevent adhesions, whereas the same pack carrying PRP did so in the present series. Sari and colleagues reached a comparable conclusion using platelet-rich fibrin in an equivalent contralateral-control design in 50 patients with nasal polyposis, reporting significantly less adhesion, infection, bleeding, granulation and frontal ostial stenosis on the treated side [16].

Infection, by contrast, showed no significant difference between the two sides at any visit. This is a reassuring rather than a disappointing result. The theoretical concern with any autologous blood product left in a contaminated field is that it may serve as a culture medium; our data provide no support for that concern, and the leucocyte content of dual-spin PRP, together with its documented antimicrobial peptide content, may be actively protective. Sari and colleagues did report a significant reduction in infection with platelet-rich fibrin [16], but their event rates, like ours, were low, and our study was powered for a difference in mucosal healing scores rather than for an infrequent binary outcome.

The mechanistic literature supports what we observed clinically. Fréchette and colleagues quantified the growth factor content of platelet-rich plasma and demonstrated its role in the proliferative and remodelling phases of wound repair [17], and Yildirim and colleagues, in a controlled experimental study in 24 rabbits, showed that submucosal PRP injection after endonasal injury produced significantly lower neutrophil counts, lower collagen intensity and lower hydroxyproline levels than saline or no injection ($p < 0.05$) [18]. Reduced collagen deposition and reduced hydroxyproline are precisely the histological correlates of the reduced synechiae and reduced fibrotic oedema we recorded endoscopically, and the lower neutrophil count corresponds to the damped early inflammatory response reflected in the faster resolution of crusting.

Two areas warrant a more cautious reading. The first is quality of life. Our patients improved by 31.9 SNOT-22 points, far exceeding the minimal clinically important difference, and Mohebbi and colleagues likewise reported significant SNOT-22 improvement after surgery in their randomised trial of 21 patients [19]. However, Mohebbi et al. found no significant difference between the two sides in endoscopic Meltzer scores, and the recent pooled analysis of nine trials found no significant PRP-attributable improvement in SNOT-22 [12]. This is not a contradiction so much as a limitation inherent in the instrument: SNOT-22 is answered by the patient about the nose as a whole, so in any split-nose study it can measure the effect of surgery but cannot discriminate between the two cavities. The improvement we report should therefore be read as validating the surgical intervention, not as evidence for PRP. The second is olfaction. Goljanian Tabrizi and colleagues randomised 48 anosmic patients with sinonasal polyposis to PRP or saline injection and found that although both groups improved dramatically after surgery (from 2.63 ± 2.63 to 18.93 ± 1.14 and from 2.10 ± 2.83 to 18.43 ± 1.36 respectively, both $p < 0.001$), the difference between them was not significant ($p = 0.802$) [20]. Their finding suggests that the benefit of PRP is confined to the mechanics of mucosal healing and does not extend to neurosensory recovery, and our study, which did not assess olfaction separately by side, cannot refute that.

Taken together, the internal consistency of our findings is their strongest feature. The two cavities were statistically indistinguishable at baseline; the same surgeon operated on both at the same sitting; the same blinded endoscopist graded both; and every systemic factor known to influence wound healing — age, diabetes, smoking, allergic status, corticosteroid exposure, platelet count and the systemic inflammatory milieu — was by construction identical for the treated and control side. The only variable that differed was the presence of PRP in the pack, and the differences observed align in direction and approximate magnitude with every comparable published series.

Summary

In this prospective randomised controlled split-nose trial of 63 patients undergoing functional endoscopic sinus surgery for medically refractory chronic rhinosinusitis, impregnating a conventional nasal pack with autologous platelet-rich plasma produced significantly better mucosal healing than an identical saline-impregnated pack in the contralateral cavity of the same patient. Lund–Kennedy endoscopic scores were lower on the PRP side at weeks 1, 2, 4 and 8, the difference at week 8 being 0.59 points (95% CI 0.38 to 0.79; $p < 0.001$). At pack removal the PRP side bled less, was less crusted and was significantly less painful. Crusting resolved faster from week 2 onwards and synechiae at eight weeks were reduced from 17.5 per cent to 4.8 per cent of sides. Infection rates were unaffected, confirming that the technique does not increase infective risk, and no adverse event attributable to PRP occurred. PRP preparation adds approximately thirty minutes to the operative pathway, requires only a centrifuge and 20 millilitres of the patient's own blood, carries no risk of disease transmission or immune reaction, and involves negligible consumable cost. On the evidence of this study, PRP-impregnated nasal packing is a safe, inexpensive and effective adjunct that can reasonably be adopted as routine practice after endoscopic sinus surgery.

LIMITATIONS

The split-nose design, short 8-week follow-up, single-centre setting and lack of surgeon blinding limit assessment of long-term efficacy, patient-reported benefits and generalisability. Further multicentre, parallel-group studies with longer follow-up and evaluation of PRP dose–response are needed to confirm durable clinical benefit.

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