The buried hybrid mattress suture: A novel technique

Sir,

Tissue approximation techniques have evolved from employing insect claws and linen glue strips.[1] Surgical aims for suturing are well known. Patient characteristics, suturing materials and techniques, added to consideration of duration, anatomical zones, function, and aesthesis decide final outcomes.[2] Despite advent of different technologies and methods, hand suturing techniques remain unparalleled in versatility.

The simple interrupted, continuous, vertical or horizontal mattress sutures, all have their utilities and drawbacks. The hybrid mattress suture judiciously balances the pros and cons of vertical and horizontal mattress suturing and is executed with speed.[3] Wu et al. employ a combination of vertical and horizontal mattress on opposite sides of the defect, a technique suited to closing unequal size margins.[4]

We have devised a hybrid technique of vertical and horizontal mattress suturing as a buried variant.

TECHNIQUE

A demonstrative model made of silicon sheets placed in step form is illustrated for clarity of depth and obliquity of suture course. The needle is held obliquely along the long axis of the wound. It is inserted from the deep surface of the flap 1–2 cm away from the incision apex and 1–2 cm lateral to the cut edge. The needle moves obliquely through the tissue towards the incision apex and brings the suture from deep subcutaneous to superficial dermis and from 1 to 2 cm lateral entry in tissues to medial cut edge of the wound. The needle exits subepidermally near the wound apex [Figure 1]. The suture returns from the opposite edge as a reverse mirror image to exit at the same depth and distance on the opposite wound edge as the entry site [Figure 2]. We employ absorbable sutures on reverse cutting needles, the sizes being dictated by tissue thickness.

On tying the knot, the dermis and epidermis oppose with accuracy towards the apex where the suture is dermal. Deeper tissues approximate well with dead space obliteration at the site of buried knot where the needle is entering and exiting [Figure 3]. The closed wound edge resembles a downward slope from wound edge distally. The second interrupted hybrid mattress suture is similarly started at a more distal location from wound apex with the needle exiting subepidermally on top of the earlier deeper suture and knot. Progressing interrupted suturing leads to wound closure [Figure 4].

Oblique insertion of the needle along with the long wound axis allows for easy suturing in constrained spaces. A single hybrid buried suture brings two depths (deep fascial/subcutaneous and dermal layers) of tissues together across a wider length than interrupted stitches achieving deep dead space obliteration and accurate epidermal alignment. Wound edge vascularity remains uncompromised while ensuring haemostasis. The closure
is air and waterproof, and we have been routinely using it with suction drains where indicated. There are no suture track marks and no removal is needed.

We routinely employ hybrid sutures in skin closure or flap inset across diverse regions of variable skin thickness with success. The technique is easily grasped on demonstration and proficiency reached after a few cases. We feel that hybrid buried mattress suturing has potential for application in various situations and may prove to be a useful addition to existing suturing techniques.

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Sir,

A very few case reports were done in the literature about transsphenoidal encephalocele (TSE) with colpocephaly and corpus callosum agenesis in a midline cleft lip and palate patient. No such case report was made from India.

Basal encephalocele (BE) occurs due to herniation of neural elements including pituitary gland or optic apparatus, through a defect in the skull base. TSE represents <5% of all BEs with an estimated incidence of 1 in 700,000 live births.

Clinical presentation is most often insidious except in those cases where a large herniation protrudes through the epipharynx. They are often associated with hypertelorism, broad nasal root, cleft lip/palate, optic nerve anomalies and agenesis of the corpus callosum.

In this case, a 10-year-old boy presented with speech problem and mild difficulty in breathing due to midline cleft lip and palate defect – Tessier cleft 0. At birth, his growth parameters were appropriate for age. On facial examination, broad nasal alar base and midline cleft lip repair scar mark were present. Systemic examination was unremarkable. The cleft lip was operated at 6 months of age, and no intraoral mass was seen that time.

This time intraoperatively, we found a pulsatile, normal mucosal color, compressible mass protruding from nasal cavity and clearly visible through the cleft palate [Figure 1]. To know the reason of that mass, magnetic resonance imaging (MRI) of the brain was carried out. MRI report showed features suggestive of corpus callosum agenesis, TSE, colpocephaly, absence of septum pellucidum and dilated and high-riding third ventricle [Figure 2].

Neurosurgical opinion was sought and asked the patient to review with endocrinologist in view of the high risk of hypothalamopituitary dysfunction.

To correct the speech problem and to protect the TSE, secondary incomplete midline cleft palate was repaired by pushback technique left untouched TSE. This encephalocele was planned for operation in his second decade of life through transnasal approach.

Post-operative follow-up period patient was relieved from breathlessness and improvement of speech as compared to earlier. Patient and his guardians are happy with the outcome.

In conclusion, the presence of midline craniofacial anomalies in association with symptoms of nasal obstruction, persistent rhinorrhoea, visual deficits and endocrine dysfunction should alert the surgeons/physicians to the possible presence of BE. Plastic surgeons may encounter this surprise finding during cleft palate repair and should be aware of the plan of action in case of such discovery. Guardians of the patient should keep him away from contact sports and be aware of avoid nasal suctioning.

Indications for surgical intervention include significant airway obstruction, repeated meningitis, recurrent rhinorrhoea, progressive loss of vision due to TSE or BE. Endoscopic route is preferred because of the high risk of endocrinal dysfunction and possibility of ocular defects.

References: