Up to 50% of non-melanoma skin cancer affects the nasal pyramid. Forehead flaps are an excellent option for the reconstruction of extensive nasal skin defects of the nasal tip and ala, achieving a good functional and aesthetic result, but it is a relatively complex procedure that requires repeated trips to theatre. The COVID-19 pandemic led to a decrease in the number of operating rooms available during 2020, which in turn has increased the surgical waiting list. To solve this situation, single-stage islanded forehead flaps have emerged as a good alternative to the classic frontal flap helping to diminish the surgical waiting list. We present our case series of 6 patients reconstructed with islanded forehead flaps between February and July 2020. The purpose of this report is to assess the advantages and disadvantages of this technique in order to inform which subgroup of patients may benefit from the one-stage flap, now the pandemic is better controlled.

The paramedian forehead flap (PFF) is an axial flap based on the supratrochlear artery; hence, doppler ultrasound is often used to ensure inclusion of it within the pedicle. The assumption that the central forehead area is completely vascularized by a random pattern of tributary arteries from the supratrochlear is incorrect. More recent studies have demonstrated the presence of other axial arteries located more medially, which are not frequently found in dermatologic anatomy textbooks: the central and paracentral arteries. Thus, the new flap, known as the midline forehead flap (MFF), would include these two arteries.

The MFF has a more medial and inferior design, which is closer to the defect and does not affect the brow. The PFF is lifted in three planes (subcutaneous, submuscular and subperiosteal), including the periosteum to contain the supratrochlear artery. The MFF admits dissection in two planes (subcutaneous and submuscular), without including the periosteum, which allows for more degrees of rotation. In addition, taking clinical measurements directly on the skin, without the need of ultrasound, does not compromise its feasibility and makes it an easily reproducible technique. These dimensions extend from the midline of the glabella to 1.2 cm laterally. For all these reasons, MFF is the design we use most frequently.

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Like other pedicle flaps, one of the drawbacks is the need for a second intervention. But the pedicle section procedure is simple and the main handicap of this procedure is having to carry the pedicle for 3 weeks, with frequent bleeding during the first few days. The aesthetic expectations of the patient must also be considered, as some patients prefer a single-stage procedure even when they provide worse aesthetic results. In addition, with the pandemic, the performance of two-stage interpolated flaps was hampered.
Herein, we present our case series of six patients reconstructed with islanded forehead flaps between February and July 2020. All of them had nasal tip or ala defects secondary to Mohs surgery of basal cell carcinomas. Out of the six patients, four were female and two were male, with a mean age of 80 years (range, 74–84 years). Regarding their medical records: four had hypertension (66%), one had diabetes mellitus (16%), three had dyslipidemia (50%) and none were active smokers. One patient was on antiplatelet therapy (clopidogrel). The applied technique was the same as the MFF procedure mentioned above with subsequent tunnelling of the flap. It consists of raising an island of skin in the subcutaneous plane and a pedicle at its base in the submuscular plane. The pedicle is de-epithelialised in order to move it through a subcutaneous tunnel created under the skin of the nasal dorsum (Figure 1).

None of the classic complications occurred (bleeding, necrosis, infection, suture dehiscence). However, the small size of the sample should be taken into account. Regarding the complications of the one-stage technique, the trapdoor effect was seen to be varying degrees in all patients and, although no cases were identified, the formation of inclusion cysts due to partial de-epithelialisation of the pedicle is possible. In 100% of the cases, there was a frontonasal bulge produced by the subcutaneous pedicle. Secondary refinement techniques were required in 33% of patients.

Both the trapdoor effect and frontonasal bulging have a marked tendency to spontaneously regress within the first 6 months, so a valid option is to wait and see. Another
management option is the infiltration of triamcinolone acetonide to promote atrophy. If it is still aesthetically bothersome to the patient, secondary refinement surgery with debulking of the interciliary subcutaneous cellular tissue can be performed.

Now that the pandemic is better controlled and knowing that the classic flap is aesthetically superior (Figure 2), we should consider which subgroup of patients may benefit from the one-stage flap.

The benefits of the single-stage flap are:

- Potential to free up operating rooms at times of high demand.
- Fewer medical appointments and no need to carry a pedicle for 3 weeks.
- More appropriate for patients with many comorbidities that may not be able to manage or commit to a multi-stage procedure. Recovery in multi-morbid patients will be expedited if we perform fewer procedures, hospital contacts and interruptions of their usual medication.4

FIGURE 2  Comparison of aesthetic results between the classic and the one-stage forehead flap. Outcome at 6 months follow up. (a) male with a more balance profile after a classic frontal flap. (b) woman with nasal root protrusion and trapdoor effect after one-stage forehead flap

FIGURE 3  Patient affected by xeroderma pigmentosum. (a) surgical defect after excision of a squamous cell carcinoma. (b) dissection and de-epithelialisation of the flap. (c) immediate outcome
Lower costs. Especially interesting for developing countries, where resources are more limited, or in case of surgical volunteering in these countries where the length of stay does not allow for a second surgical intervention (Figure 3).

Less disabling for spectacle wearers. It should be noted that elderly patients do not usually wear contact lenses, so by carrying the pedicle and not being able to wear glasses, they may be unable to perform daily living activities for weeks.

As mentioned above, the aesthetic result will be better with the classic flap. Regarding complications, the incidence of bleeding and infections is theoretically lower with the one-stage flap, since the pedicle is not left exposed. However, there could be a greater theoretical risk of venous congestion and necrosis due to compression of the pedicle through the tunnel. All these advantages and disadvantages are summarized in Table 1 (Appendix S1).

In conclusion, we believe that the one-stage forehead flap can be a good reconstructive option for elderly multimorbid patients on anticoagulant or antiplatelet therapy for whom the aesthetic result is not a priority.

CONFLICT OF INTEREST
None declared.

### TABLE 1 Advantages and disadvantages of classic forehead flap versus islanded forehead flap

| N | Age | Gender | Defect size (mm) | Location of the defect |
|---|-----|--------|------------------|-----------------------|
| 1 | 83  | F      | 36 × 23          | Nasal tip             |
| 2 | 80  | M      | 27 × 32          | Dorsum and nasal tip  |
| 3 | 83  | F      | 45 × 31          | Right nasal ala and cheek |
| 4 | 74  | F      | 35 × 32          | Dorsum and nasal tip  |
| 5 | 84  | M      | 39 × 34          | Nasal tip             |
| 6 | 79  | F      | 22 × 21          | Nasal tip             |

Abbreviation: OR, operating room.

### INFORMED CONSENT
The patients in this manuscript have given written informed consent to publication of their case details.

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