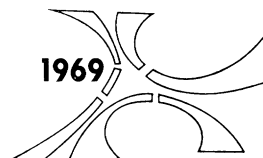


Surgical Recession of the Premaxilla and Its Effect on Maxillary Growth in Patients with Bilateral Clefts



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The procedure of surgical recession of the premaxilla has elicited some very vehement criticism (1, 2, 3, 4) in plastic surgical literature over the years. Since we have advocated (5, 6) the procedure in selected cases in two previous publications, the publication of some later follow-up of our patients seems to be in order. There are other writers who do agree with this procedure (7, 8).

The surgical procedure performed is that originally suggested by Brown and by Cronin (9, 10). Cronin, however, has long since given it up. Our first report on this was given 10 years ago after 5 years' experience with it. About half our patients are now getting into the age bracket where we could be more certain about the growth in the middle third of the upper jaw.

This paper covers a study of 90 patients with complete or partial bilateral clefts. There were 50 patients who had complete bilateral clefts of the lip, alveolar ridge, and palate. Of these 50 patients, 20 were found to have the premaxilla so far anteriorly that a recession was required. Of these 20 patients, 9 are now between 8 and 15 years of age. It is this group which will be reported here.

To review the surgical procedure, (Figure 1) the septum and vomer are resected straight up into the roof of the nose. This must be well behind the epiphyseal line which joins the premaxilla and septum. The remaining upper portion of the cartilaginous septum which, if uncut, would make the premaxilla swing like a gate, must be sectioned and slid over itself so that the premaxilla moves straight back. It must be fixed in this position so that the teeth in the premaxilla do not erupt with a lingual inclination.

It should be emphasized that this procedure was started with real reluctance—and only when there seemed to be no other means of aiding the patient.

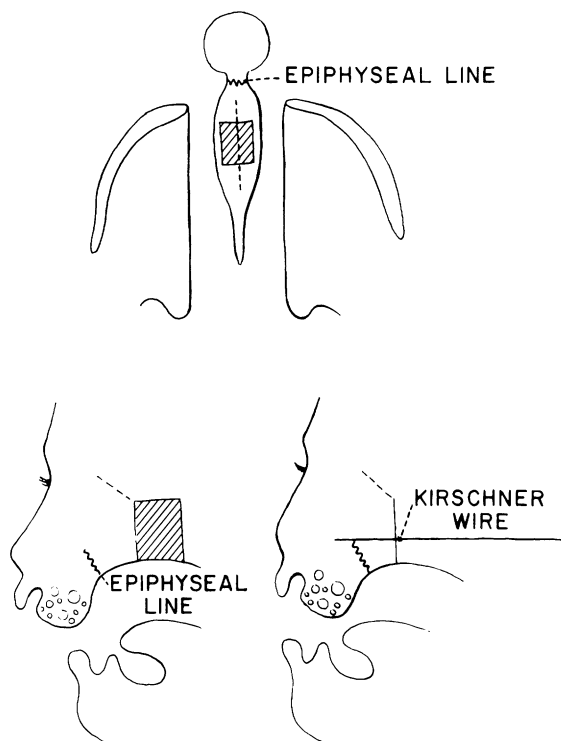


FIGURE 1. Illustrating the location and technic for resection of the septum and vomer to accomplish recession of the premaxilla. Reproduced by permission of *Plastic & Reconstructive Surgery* 35, 512-529, May '65.

There are at least three criteria for judging whether good or harm has been done to these patients who have had a surgical recession. First, but perhaps least significant, is their appearance; second, the occlusion of the teeth; and, third, the measurement of the cephalometric films. The first two criteria will be self-evident for each individual patient. Cephalometric films deserve special mention. Figure 2 demonstrates the relation between the cranial base and the maxilla and mandible in both a normal (Figure 2A) individual and one who had severe attenuation (Figure 2B) of growth in the maxilla following repair of a unilateral cleft lip and palate. Universally accepted standards give the SNA angle for adolescent Caucasians as 81 degrees (± 3.5 degrees); the SNB angle as 78 degrees (± 3.0 degrees); and the average difference as -3 degrees. If the minus difference between the two angles is greater, the patient has either a protruding premaxilla or a retrognathic mandible. If the difference between SNA and SNB is a smaller minus angle or becomes a positive angle, it is because of marked retrusion of the maxilla or prognathism of the mandible. The summary in Table 1 shows the SNA and SNB angles and the difference between them in each of the nine patients in this study.

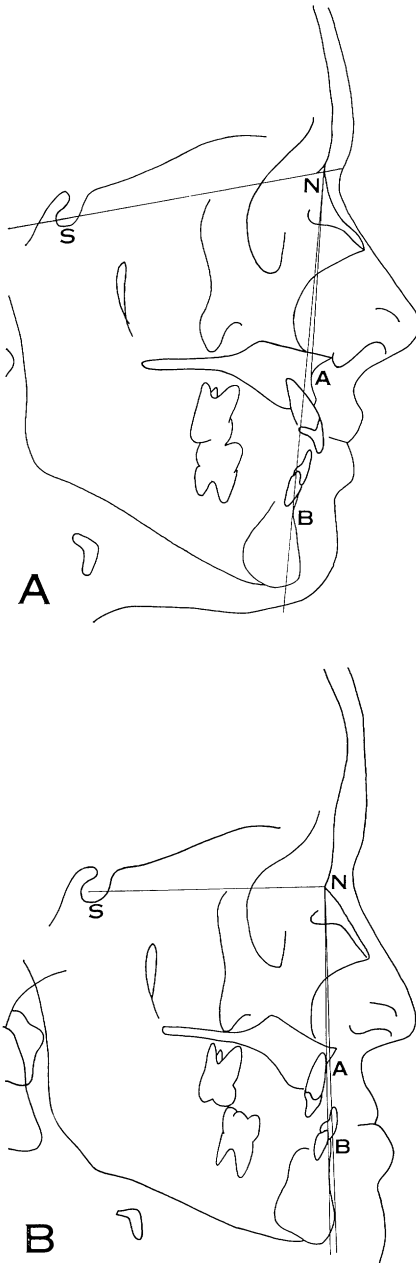


FIGURE 2. A. Cephalometric tracing of a normal individual showing the SNA and SNB angles and their difference. B. Cephalometric tracing of a patient with attenuation of growth in the maxillary area following repair of a *unilateral* cleft lip and palate.

Since it is not feasible to show pictures of all these patients, both the good and poor results will be illustrated through two examples. Patient, R. A. (Figure 3) had the premaxilla recessed 8 mm. at 5 weeks of age. Two weeks later a bilateral lip repair was carried out. The patient has

TABLE 1. SUMMARY OF CASES OVER EIGHT YEARS OF AGE—RESULTS 1969

initials	birth date	protrusion of premaxilla	age at lip repair	recession of premaxilla		age at palate repair	teeth			cephalometric readings		
				mm	age		appearance	bite	correctable orthodontically	SNA	SNB	difference (normal values)
M.M.	4/2/53	10 mm	R—5 mo L—9 mo	8	5 yr.	5-9/12	Flat upper lip Good	X-bite	No	81 ± 3.5	78 ± 3.0	-3.0
J.S.	7/23/54	25 mm	L—2 mo R—3 mo L—3 mo	10 9 12	1-9/12 2-7/12 1-9/12	3-2 1/2	Good	Edentulous		*	71	-9.0
M.S.	9/13/55	25 mm	R—2 mo L—3 mo	12	1-9/12	1-9/12	Excellent	Normal	Has had or- thodontia	78	73.5	-4.5
D.H.	10/10/56	14 mm	4 wks	10	4 wks	1-5/12	Excellent	Normal	No ortho.	85	72.5	-12.5
R.A.	10/27/57	20 mm	7 wks	8	5 wks	1-5/12	Flat upper lip	X-bite	Probably not	70	69.5	-0.5
D.W.	6/15/57	13 mm	5 wks	9	5 wks	1-1/12	Excellent	X-bite	Yes	85	72	-9.0
J.S.	Jul '59	15 mm	3 wks	12	2 wks	1-8/12	Excellent	X-bite	Yes	76	73	-3.0
W.E.	5/24/60	20 mm	3 wks	8	1-9/12	1-9/12 soft only	Excellent	Normal	Has had or- thodontia	82	73	-9.0
M.N.	5/20/61	19 mm	10 mo	7 6	2-7/12 1 1/12	2-7/12 hard 1-1/12	Excellent	Normal	No ortho.	75	71.5	-3.5

* Because of lack of occlusion cannot evaluate AB difference. However on radiographic profile, at rest, the maxilla appears ahead of the mandible.

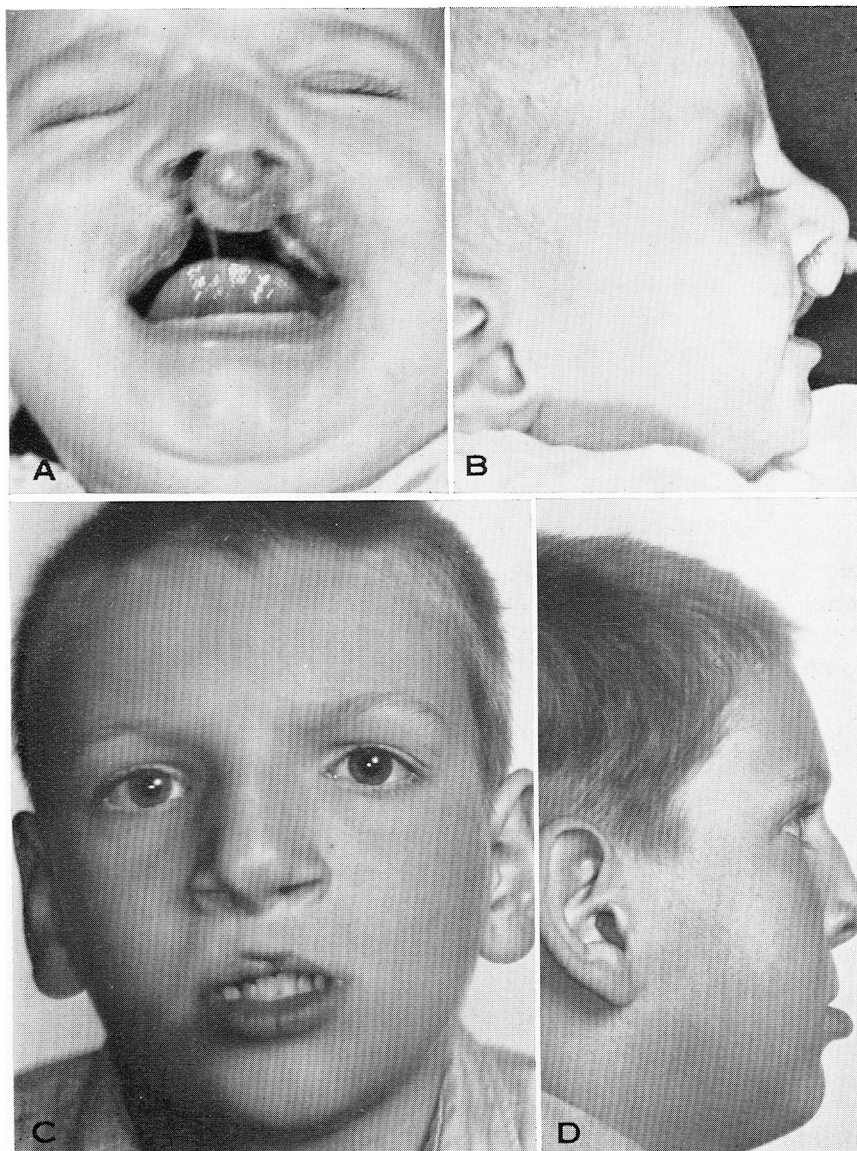


FIGURE 3. A & B, left & right: Infant at birth with bilateral cleft lip and palate and severe protrusion of the premaxilla. The premaxilla was recessed 8 mm. at 5 weeks of age and the lip repaired 2 weeks later.

FIGURE 3. C & D, left & right: Appearance at 9 years of age just before he was lost to follow up in 1966.

been lost to follow-up since he was 9 years of age. But at that point he had more evidence of attenuation of growth in the premaxillary area than any of the other patients. However, it is also to be noted that his cephalometric film indicates that he has some degree of retrognathia

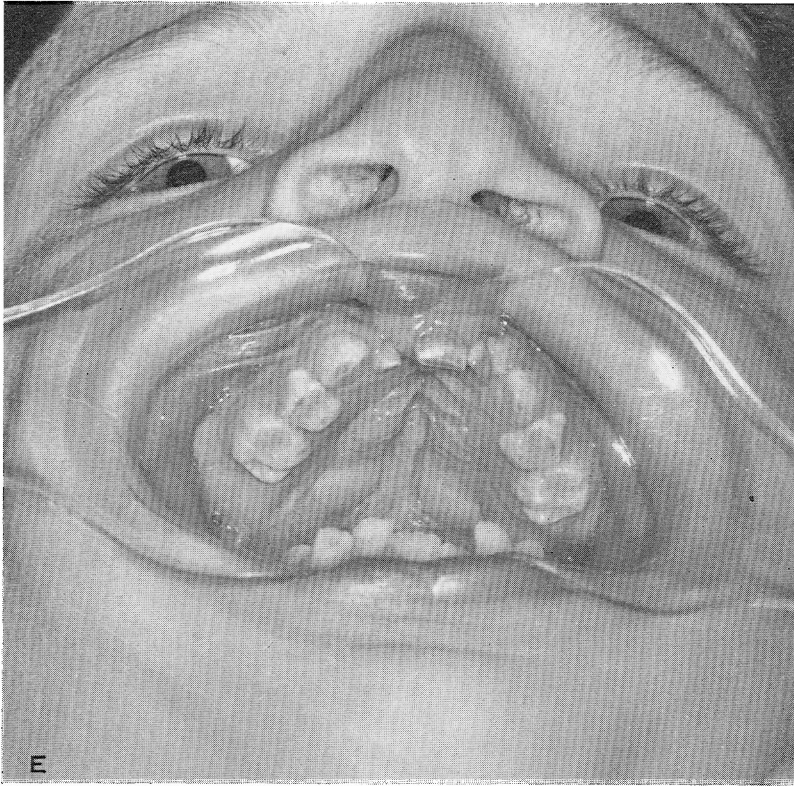


FIGURE 3. E. Atrophic premaxilla at 9 years of age.

as well as the lack of growth in the maxilla. One other patient (M. M.) of the nine shows this same severe flattening of the upper lip.

Patient, D. H., is shown in Fig. 4A and B at birth. The premaxilla was recessed 10 mm. and the lip repaired in the same operation at 4 weeks of age. His appearance and occlusion at 12 years 4 months is shown in Figures 4C, D & E. The cephalometric tracing, (Figure 4F) shows a larger than normal angle between SNA and SNB indicating that his premaxilla is still too far forward in spite of the recession. However, his occlusion is so good without having had any orthodontia that there seems no reason to do any other procedure for him. Seven of the 9 patients fall into this category though two of these will require orthodontia to correct anterior cross-bite.

In summary, 2 of our 9 *longer term* patients have had some lack of growth in the middle third of the upper jaw. In the other 11 patients of the 20 who have had recession, one died of congenital heart disease at 1-1/2 years. There are probably 2 more patients of the remaining 10 who are going to fall into this category, though they are still too young to say with certainty.

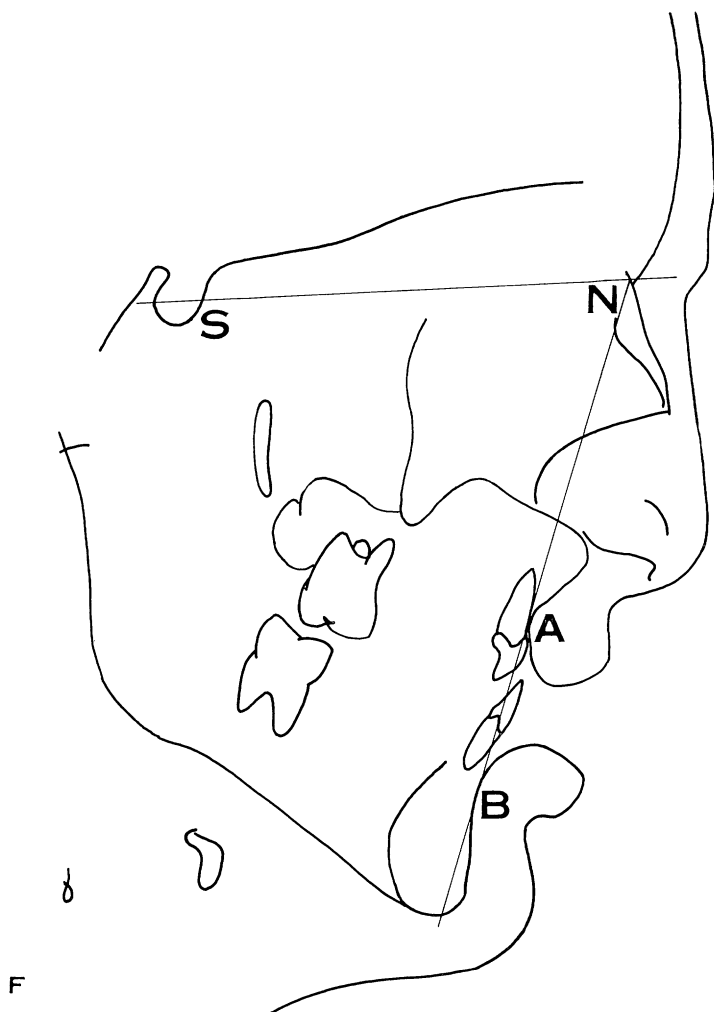


FIGURE 3. F. Cephalometric tracing at 9 years showing the decreased SNA and SNB angles but still a -0.5 difference between them which shows the patient is actually retrognathic as well as having attenuated growth of the premaxilla.

In the 30 patients who had complete bilateral clefts *without* recession there are at least 4 patients who are demonstrating some lack of growth in the maxillary area.

We will admit that all the criticism of this procedure has persuaded us to do it less often than we otherwise might. But our greatest aid started 4 years ago when our orthodontists showed us they could prevent collapse of the lateral jaw segments by fitting the patient with a prosthesis to be worn from the time of lip repair until the premaxilla has moved back into the arch. Such movement does not always occur, however. When it does not, the correction is achieved surgically.

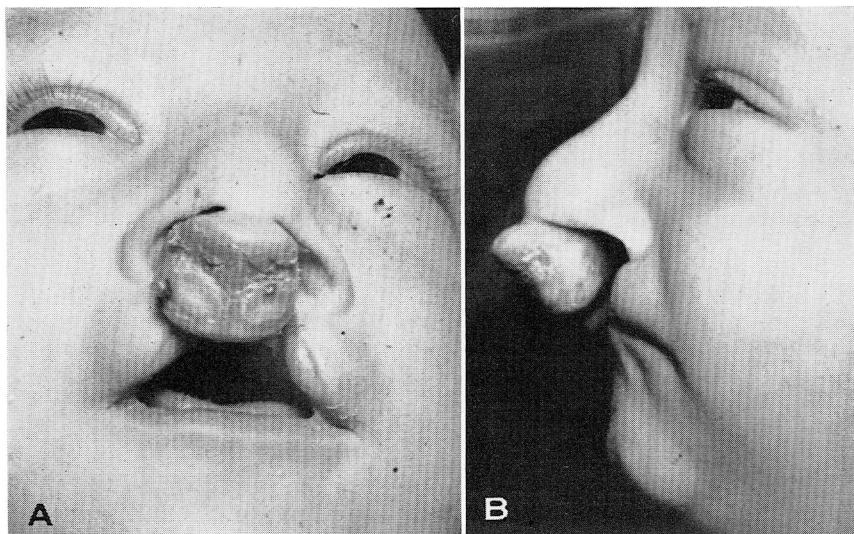


FIGURE 4. A & B. left & right: At birth. At 4 weeks of age the premaxilla was recessed and the lip repaired in one operation.

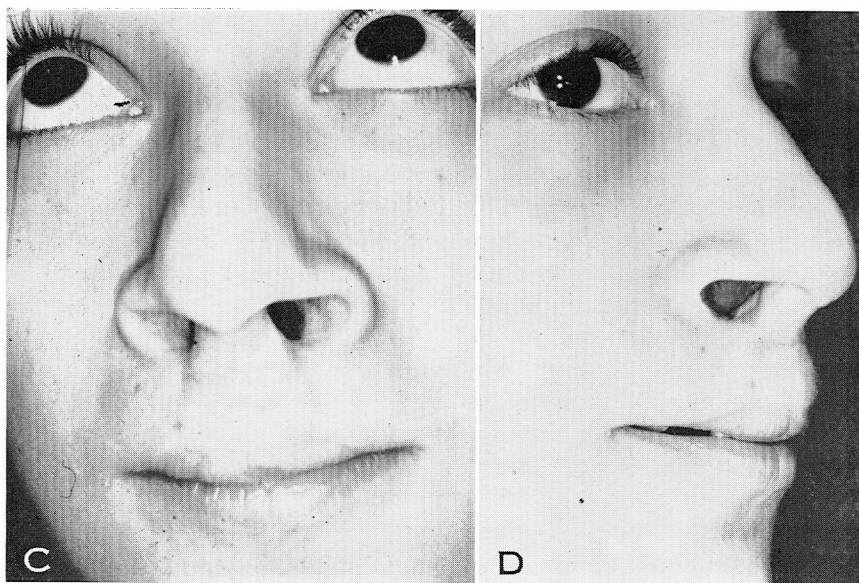


FIGURE 4. C & D. Appearance at 12 years 4 months.

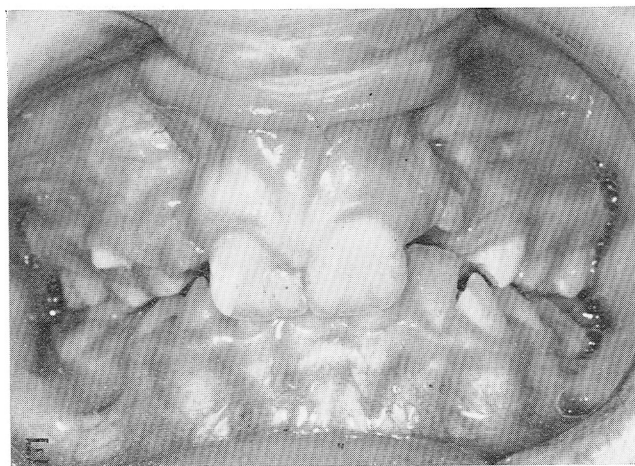


FIGURE 4. E. Present occlusion. The patient has had no orthodontia.

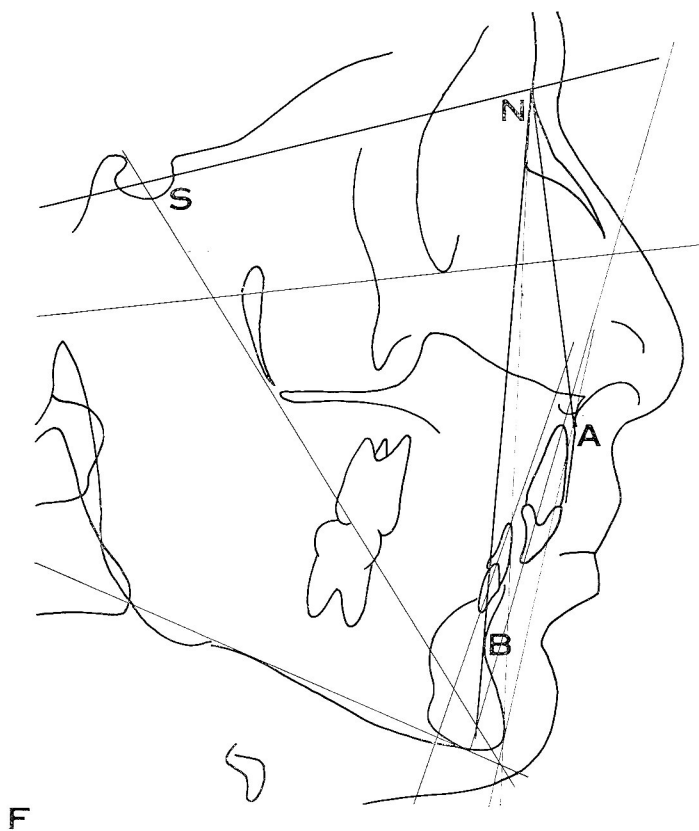


FIGURE 4. F. Cephalometric tracing showing increased minus difference between SNA and SNB angles. The patient may also be slightly retrognathic.

Our results would seem to indicate that if recession is done with care and gentleness and with due regard for the area of growth in the premaxilla, it may be done without making the patient a dental or cosmetic cripple.

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