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## Effectiveness of a prolonged compression of scalp arteries on migraine attacks

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Sirs: A brief digital compression of the superficial temporal artery can relieve the pain of a migrainous attack [1, 2, 5] and of a cluster headache attack [3]. No data are reported in the literature concerning a prolonged compression. In a series of consecutive patients we evaluated the effect of a prolonged (more than 3 minutes) compression of scalp arteries on a migrainous attack and attempted to establish which arterial compression is more effective, especially in relation to the site of pain.

The subjects were 94 ambulatory patients (71 female, 23 male, age range 8 to 62 years, mean 21) affected with migraine without aura according to IHS criteria [4]. They were studied during a migraine attack, having been informed of the aim and technique of the compression and having voluntarily accepted it. The intensity of pain, which had been present for from several minutes to few hours, was moderate in 58 cases, severe in 36. In some cases analgesic drugs or triptans had been used at the onset of pain, providing no relief or insufficient relief.

The temporal artery was compressed using firm digital pressure against the zygomatic arch in front of the tragus and 1–2 cm downstream; the occipital artery was compressed against the occipital

bone. The localization of the arteries was done by means of the perception of their pulse with the finger. The compression, strong enough to interrupt blood flow, was first carried out on a single ipsilateral artery, or bilaterally in the case of bilateral pain. When the pain was prevalent in the anterior part of the head, compression began in the temporal artery or arteries, and in the occipital artery or arteries when in the posterior part. Compression of the first artery was stopped immediately if an initial pain relief was obtained, otherwise it was continued for 3 minutes. After a half-minute interval, the arteries not previously compressed were compressed in the same manner. Subsequently, the artery/ies where the best improvement had been obtained were compressed for 4 minutes. If there was still not significant pain reduction, the temporal and occipital arteries were simultaneously compressed for at least 6 minutes.

As a control, in the last 32 patients, sham compression was carried out 1 cm anterior to temporal artery, or 1 cm lateral to the occipital artery, according to the method described above. The sham compression was followed by the true artery compression procedure.

Table 1 shows the results in relation to the site of pain and the arteries compressed.

Overall, 68 % of patients ob-

tained relevant or complete and enduring pain relief; the percentage reached 90 % (52/58) in the attacks with moderate pain. Not infrequently the arteries, especially the superficial temporals, were tender when compressed; this did not influence the result. Patients generally did not respond when the attack had been in progress for several hours and/or when pain was very intense. The sham artery compression never resulted in pain reduction. No adverse effects were noted.

Prolonged (more than three minutes) compression of the occipital and/or superficial temporal arteries is frequently efficacious in reducing or eliminating migraine pain.

We found no constant relationship between the site of pain and the ipsilateral arteries giving better relief when compressed. For example, pain more frequently ceased with mono- or bilateral occipital artery compression than with temporal artery compression.

The possibility of obtaining substantial relief or cessation of pain with this procedure seems relevant in the therapy of migrainous attacks, making it possible to avoid or reduce the use of drugs.

**Table 1** Effect of arterial compression on migrainous attack. The sum of C and D is far less than B, since in several cases there was no difference. Artery compression was bilateral in cases of bilateral or diffuse pain

A) pain localisation	B) marked improvement or stop of pain (% of total)	C) temporal compression more effective than occipital	D) occipital compression more effective than temporal	E) both temp. & occipital compression necessary to obtain relief
anterior unilateral	24 on 39 (61.5%)	4	3	19
hemicranial	13 on 24 (54.2%)	2	5	12
anterior bilateral	19 on 22 (86.4%)	5	8	14
posterior bilateral	3 on 3 (100%)	0	3	0
diffuse	5 on 6 (83.3%)	1	2	4

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