McBride's operation for hallux valgus.

A 2–11-year follow-up of 46 cases

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During a 10-year period, 46 feet with hallux valgus in 36 patients were operated on a.m. McBride. At the follow-up examination a median of 9 (2–11) years after the operation, a reduction in the hallux valgus angle from 32° to 26° and in the intermetatarsal angle from 13° to 10° was found; but on analyzing the single parts of the operation, we found that the result was only significant in those patients that had had the original procedures done, i.e., tenotomy and reattachment of the conjoined tendon, lateral capsulotomy, and lateral sesamoidectomy. McBride's operation for hallux valgus should be performed as described by the originator of the method.

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The object of McBride's conservative operation for hallux valgus is to release the contracted structures on the lateral side of the first metatarsophalangeal joint (McBride 1928, 1935, 1954). We have analyzed the results of this operation with attention being particularly directed to the components of the procedure.

Patients and method

From 1976 through 1986, a total of 46 feet with hallux valgus in 36 patients (33 females and 3 males) were operated on a.m. McBride. The median age was 35 (11–70) years at the time of operation.

Indications for an operation were problems with daily footwear in 36 feet, in 17 feet there was metatarsalgia, and in 37 feet there was pain from a bunion (Table 1). The symptoms had persisted a median of 3 (1–40) years before the operation. No feet had arthrosis of the first metatarsophalangeal joint. At the follow-up examination a median of 9 (2–11) years after the operation, the patients were reexamined and radiographed, except for 8 patients with eight feet, which had been reoperated on.

Operative procedure

Either one incision starting on the lateral side of the great toe in the first web and crossing proximally and obliquely across the first metatarsal bone or two incisions over the prominence and in the web were used. The bunionectomy included the following procedures: medial capsulorrhaphy of the first metatarsophalangeal joint, exostectomy of the medial prominence, tenotomy of the conjoined tendon and reattachment to the first metatarsal bone, and excision of the lateral sesamoid. No cast was necessary, and the patients were mobilized the next morning.

In this retrospective series, there is no information as to why some parts of the procedures were left out.

The result was classified from 1 to 4 (with 1 as the best) by the patients regarding cosmetic appearance, the effect on pain, and the final result of the operation. The aggregate result of the patients' own evaluation was judged as excellent (3–6 points), fair (7–9 points), or poor (10–12 points).

The preoperative radiographs were compared with the radiographs that were obtained at the follow-up examination. Radiographic analysis consisted of a) hallux valgus angle: the angle between the longitudinal axis of the shaft of the first metatarsal and proximal phalanx; b) intermetatarsal angle: the angle between the longitudinal axis of the first and second metatarsal; c) width of the forefoot: measured as the widest distance between the outer cortex of the first and the fifth metatarsal heads.

For statistical analysis, Wilcoxon's signed rank test and the Mann-Whitney rank sum test were used.

Table 1. Clinical data before and after McBride's procedure on 46 feet

	Preoperatively	Follow-up
Problems with normal footwear	36	13
Metatarsalgia	17	8
Pain from bunion	37	10
Hallux valgus angle (degrees)[a]	32 (16–58)	24 (11–58)*
Intermetatarsal angle (degrees)[a]	13 (5–17)	10 (5–16)*
Decrease in width of forefoot (cm)[a]	8.7 (7.4–10.5)	8.3 (7.7–10.0) NS

*$P < 0.01$.
[a] median (range).

Table 2. Preoperative and postoperative hallux valgus angles in relation to type of operation. Median (range)

		Hallux valgus angle (degrees)	
		Preoperatively	Follow-up
Tenotomy	+	32 (16–58)	24 (11–58)**
	–	27 (26–28) NS	24 (10–40) NS
Lateral capsulotomy	+	29 (21–44)	22 (11–38)*
	–	39 (28–55) NS	33 (20–40) NS
Sesamoidectomy	+	35 (21–58)	22 (11–58)*
	–	28 (23–55) NS	30 (11–40) NS

*$P < 0.01$, **$P < 0.05$.

Results

In 29 feet the result was found to be excellent by the patients, in 8 feet it was fair, and in 9 feet it was poor; the 8 reoperated on feet, which were not reexamined, were classified as poor. At the follow-up examination, 13 patients had problems with daily footwear, 8 had metatarsalgia, and 10 had pain from a bunion (Table 1). There was no difference in the preoperative values between the reoperated on and nonreoperated on patients. The hallux valgus angle and the intermetatarsal angle were reduced ($P < 0.01$). The width of the forefoot seemed somewhat reduced as well (NS). Feet with a lateral sesamoidectomy and lateral capsulectomy had a larger reduction of the hallux valgus angle than those without these procedures ($P < 0.05$), and feet with dissection of the conjoined tendon also had a better reduction than those without this latter procedure ($P < 0.01$; Table 2).

Discussion

When McBride published his papers on soft-tissue corrections of hallux valgus, he emphasized the importance of the single steps, and especially of the removal of the lateral sesamoid (McBride 1928, 1935, 1954). Later, he revised the procedure, and he advised that the lateral sesamoid be left in place in younger adults, where the joint capsule had not become permanently contracted (McBride 1967). He found the reattachment of the conjoined adductor to be the basic principle of the operation. Generally, he judged the procedure to be well suited for younger persons, as no bone correction is necessary, whereas in case of remission, one of the bone-correction procedures can be performed.

Martin et al. (1983) reviewed 17 patients with 21 hallux valgus afflicted feet. In 11 operations, a modified McBride procedure was performed, i.e., no reattachment of the conjoined tendon and no excision of the sesamoid were executed. He found a greater correction of both the intermetatarsal angle and the hallux valgus angle in patients where both sesamoidectomy and reattachment were performed.

The necessity of sesamoidectomy has been debated, and many authors have reported complications, especially hallux varus, after lateral sesamoidectomy (Martin et al. 1983, Johnson and Spiegl 1984, Scranton and Zuckermann 1984, Turner 1986). In our series the sesamoidectomy gave a reduction in hallux valgus angle, as did tenotomy of the conjoined tendon and capsulorrhaphy. No hallux varus was seen.

We did not find any relation between the degree of hallux valgus preoperatively and the overall result. One patient with a preoperative hallux valgus angle of 58° had an excellent result.

Although there still were some problems with normal footwear in 21/46 feet, only 9/46 had disappointing overall results. This corresponds well to the findings of McBride (1935). In a review of surgery for adolescent hallux valgus, Helal (1981) had poor results with the McBride operation, but he did not mention how many of the single steps of the procedure that were performed in his series.

We feel that any patient with hallux valgus without arthrosis in the first metatarsophalangeal joint can be treated with the McBride procedure, but it is necessary to emphasize the importance of performing the procedures according to McBride's description. The operation is gentle, and an osteotomy can be performed on a later occasion if necessary.

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