Open vs. Percutaneous Polectomy in Stenosing Tenosynovitis of the Thumb in Children

I was greatly interested in reading an article published in your Journal titled Open vs. Percutaneous Polectomy in Stenosing Tenosynovitis of the Thumb in Children by doctor Ramírez Barragán et al1 where the authors make a retrospective study of 135 thumbs in 108 patients. Ninety-two cases were treated by means of open surgery and 43 percutaneously, with a recurrence rate of 6.5 and 34.8%, respectively. The authors conclude that the percutaneous technique for trigger thumb is not an advisable procedure for the pediatric population. They describe the procedure by placing an intramuscular needle distal to the nodule on the A1 annular structure, obtaining the tearing of the pulley on extending the interphalangeal joint. During the pre-op period the thumb is immobilized in extension for one week.

I think it necessary to make a few remarks taking into account that the results reported differ substantially from those of other series published recently. In their paper, the authors do not specify if it was one or more surgeons that operated on the patients, which is not a trivial matter given the fact that all the more or less novel minimally invasive techniques are characterized by a lengthy learning curve that could introduce a bias in the study, especially if compared with a well-known surgical technique such as open polectomy, in use for decades and requiring a minimal learning curve, thus with little bearing on the series presented.

Ruiz-Ibán et al2 recently Publisher a prospective study on the percutaneous release of the trigger thumb of 27 children operated and followed up by the same surgeon and found only one instance of recurrence following the method described by Eastwood et al3. The authors of the paper meticulously describe the percutaneous technique applied until they succeed in totally ridding the patients of a trigger effect on flexing their thumb. The digit is subsequently immobilized with a soft bandage and parents are taught to mobilize their children’s thumb from the first few hours of the post-op period. Patients are followed up at the third and tenth day to check the mobility of their thumb. Both the surgical procedure and the immediate patient follow-up seem to be significantly different from what Ramírez-Barragán et al describe in their paper.

Similar results were obtained by Wang y Lin4 in a retrospective study similar to that by Ramírez-Barragán et al, which compares the effectiveness of the open vs. the percutaneous in addressing trigger thumb in 61 children with 72 affected thumbs and finds a recurrence rate of 0 and 7.5% respectively, stating that the latter were cases treated in the outpatient setting with local anesthesia and, logically, little cooperation from the child.

Nonetheless, I think one should clearly state that the percutaneous technique has a slightly higher recurrence rate than the open technique both in adults and in children. But the open procedure is not exempt from other complications like recurrences (6.5% for the authors of the paper), infections (2 cases), digital nerve lesions and disruption of the thumb’s mobility. Mc Adams et al5 reviewed 30 trigger thumbs subjected to open surgery in 21 children with a follow-up of no less than 15.1 years (range: 2-40 years) and pointed out that 17.6% of them presented with hyperextension of the metacarpophalangeal joint, and up to 23% showed a loss of interphalangeal mobility, which could be attributed to a permanent lesion of the A1 pulley, whose reconstruction tends to be extremely challenging.

To conclude, I believe that, taking into account that there are publications with results that differ markedly from their own, before contraindicating percutaneous polectomy in children the authors should consider the appropriateness of the operative technique they use and of their postoperative management of the children. Although recurrence of trigger thumb is more frequent with a percutaneous procedure, this is an easily resolved complication unlike those that could potentially arise from open polectomy. I therefore think that the percutaneous procedure is a safe and efficient approach which, in expert hands, succeeds in sufficiently releasing the tendon and may prevent the usual problems of thumb mobility these patients tend to suffer.

Finally, it should be said that percutaneous polectomy in children, carried out by means of a small tenotome, was described by Klaus Chiari back in 1953.

P. González-Herranz, M. Ruiz-Ibán and J.A. López Mondéjar
Teresa Herrera Maternity and Child Care Hospital.
La Coruña.
Letters to the Editor

REFERENCES


Reply

We are thankful for the comments made by Dr. González Herranz on the treatment of stenosing tenosynovitis in the child’s thumb. In the study by Ramírez et al1 out of a total of 135 trigger thumbs examined, the percutaneous technique was used in 45. The procedure was carried out by 3 surgeons, each with roughly the same experience of the technique (11, 15 and 17 cases respectively) and the same percentage of recurrences. The main difference we find with respect to the study by Ruiz-Ibán et al2 concerns the immobilization period following surgery. In our cases, the thumb was kept immobile with a soft bandage for about 7 days to prevent antalgic flexion contracture. It could be that early mobilization might produce a better functional result.

In his setter to the editor, Dr. González Herranz states that trigger thumb recurrences are more frequent when the percutaneous approach is used and that complications are less severe with open polecotmy. The low number of complications we obtained with the open technique (2 superficial infections), in line with the findings of other authors3,4, should not be construed as a deterrent. Moreover, the percentage of recurrences obtained with the percutaneous technique should make us extra careful when indicating it in children.

A. Ramírez Barragán
Niño Jesús Children’s Hospital. Madrid.

REFERENCES

34, vimentin, calponin and, focally, for 7-leucocyte and negative for the S-100 and CD-99 proteins. There were abundant vessels, some with hemangiopericytoid features. An adult solitary fibrous tumor was diagnosed.

Once the results were analyzed, a nuclear magnetic resonance of the left hip was performed (fig. 1) that showed a T1 and T2-hypointense well circumscribed mass of around 8 cm with a large longitudinal axis that was slightly heterogeneous and in close contact with the cranial-most of the vastus lateralis muscle and medially displaced the gracilis. It did not seem to infiltrate any of the adjacent structures.

Since the mass had been intraoperatively seen to be highly vascularized, the tumor was embolized. The arteriogram showed a highly vascularized mass that depended on the first ramus of the deep femoral artery.

The next day, the tumor was fully resected through an anterior approach (fig. 2). The mass did not infiltrate any of the adjacent structures and was highly vascular but did not bleed in excess thanks to the embolization previously performed. The pathological study confirmed the diagnosis.

We consider the finding of the tumor a wholly incidental occurrence because pain completely disappeared following arthroplasty.

Currently, one and a half years into the post-op period, the patient is still asymptomatic and shows no signs of local recurrence or metastasis (thoracoabdominal computerized axial tomography and hip NMRI showed no alterations).

**DISCUSSION**

Solitary fibrous tumor in the adult is a rare spindle cell neoplasm whose exact incidence remains unknown. Gold et al. studied the incidence of this tumor in their hospital over a 18-year period and found that of a total 4,000 soft tissue tumors only 79 corresponded to this kind, and of these only 2 (2%) were located in the limbs. The literature contains no other series of this tumor that contains more cases. At the
beginning it was thought that the tumor originated is the mesothelium of serous membranes. For that reason, in the past it was given names like fibrous mesothelioma, localized mesothelioma and submesothelial fibroma, which contributed to the confusion. Nowadays there is a general belief that this tumor is of mesenchymal rather than mesothelial origin. Neoplastic cells are not mesothelial cells and, although the tumor appears more usually in the pleura and the peritoneum, it can originate at sites wholly unrelated to serous cavities. This tumor rarely affects the musculoskeletal system and only 22 cases have been reported in the English-language literature of it being present in the limbs (8 in the thigh, 4 in the arm, 2 in the forearm, one in the shoulder, 2 in the calf and the remaining six at unspecified locations). It equally affects men and women and possessed a broad histological spectrum, which makes its accurate diagnosis difficult. CD-34 and bcl-2 histochemical tests are an invaluable diagnostic tool.

NMRi is useful in terms of locating the tumor and establishing its size and is relation with surrounding tissues. Nonetheless, NMRi does not seem to reflect any specific characteristics of the tumor and is not able to distinguish it from other types of soft tissue tumors. The differential diagnosis of adult solitary fibrous tumor in the limb must be carried out with several benign and malignant neoplasms such as fibrous histiocytoma, desmoid tumor, fibrosarcoma, hemangiopericytoma, dermatofibrosarcoma protuberans, neurofibroma and malignant peripheral nerve sheath tumor.

In Gold’s study, tumors larger than 10 cm had a poorer prognosis as regards metastasis and local recurrence. A malignant component was defined as an area of markedly increased cellularity with over 4 mitotic figures in high (x 10) magnification fields without alternating hypocellular sclerotic areas. Presence of such a component was associated with a shorter local recurrence and metastasis-free period. This study concluded that patients with a tumor of 10 cm or less that did not have a malignant component a good outcome could be expected and could be appropriately treated with surgery only. Larger tumors with a malignant component had a poorer prognosis and, as the ideal adjuvant treatment to surgery was ill known it was essential to follow them up closely.

Previous studies such as that by Hasegawa indicated that the local recurrence or distant metastasis rate of extrathoracic tumors ranged between 10 and 13%, but of the 22 cases reported in the literature only one recurred locally in the upper limb. A wide resection and a careful long-term follow-up are mandatory in the treatment of this tumor.

At present, it is not known what the ideal adjuvant treatment to surgery may be; chemotherapy and radiation therapy are used.

In the study by Gold et al, two patients received adjuvant treatment to surgical resection. Both had suffered a local recurrence. One of them received adjuvant chemotherapy with doxorubicin and radiation therapy before surgery. The other received radiation therapy after resection of the primary tumor and was subsequently treated with brachytherapy, at the same time at which surgical resection of the local recurrence was carried out.

**ACKNOWLEDGEMENTS**

We would like to thank Telma Meizoso Latova, M.D. from the Pathology Department of our Hospital for her cooperation in this case.

**REFERENCES**