RESULTS OF SURGERY

Compared with patients requiring surgery for ablation of VTs, patients with SVTs are superior candidates for surgical treatment. As a group they are usually younger, have relatively normal hearts, and therefore tolerate surgery well. Rehabiliation and late survival rates are also much better.[159]

As understanding of arrhythmogenic mechanisms and diagnostic methods have improved, surgical ablation has become feasible for more patients and a variety of supraventricular arrhythmias.[159]

Surgical treatment of SVT, of which WPW syndrome is the most common, has now advanced to the point that it is considered the therapy of choice in the majority of patients.[166]

The results of large series in which patients with WPW syndrome underwent either closed or open-heart surgery are summarized in (table 7). Overall, the results of these have been extremely gratifying.

In most cases, the accessory pathways were successfully divided regardless of location. The incidence of patients having heart block or requiring repeat surgical procedures has significantly decreased in more recent series, as summarized in (table 8). Finally, the incidence of mortality in the absence of an associated anomaly continues to be extremely low (table 9).[31]

In their first Egyptian report about surgical resection of accessory pathways, **Zikri and Associates** [215] reported 11

Table (7): Results of surgery for WPW syndrome.

After Gallagher et al. (1988).[31]

Series	No. of pts/AP	Successful division / AP			
		LFW	RFW	PS	AS
Endocardial approach					
- Sealy et al. (Duke) 1968-1983	267/304	134/143	52/53	66/81	23/27
- Iwa (Kanazawa) 1973-1983	160/176	77/89	58/60	22/22	5/5
- Cox et al. (Duke-St.Louis) 1980-1985	108/137	79/79	17/17	33/33	8/8
-Selle-Gallagher (Sanger clinic) 1983-1987	100/121	66/66	21/21	30/31	3/3
Closed heart epicardial approach. Guiraudon (London,Ontario) 1980 - 1985	105/108	74/74	10/11	23/23	---

Table (8): Incidence of heart block and requirement for reoperation.

After Gallagher et al. (1988) [31]

Series	Reoperation	Heart block
Endocardial approach		
- Sealy et al. (Duke) 1968-1983	14%	6%
- Iwa (Kanazawa) 1973-1983	0.006%	4.3%
- Cox et al. (Duke-St.Louis) 1980-1985	0%	0.8%
-Selle-Gallagher (Sanger clinic) 1983-1987	3%	1%
Closed heart epicardial approach. Guiraudon (London,Ontario) 1980 - 1985	4.7%	0%

Table (9): Incidence of mortality in the absence of an associated cardiac anomaly.

After Gallagher et al. (1988).[31]

Series	Mortality - No. associated anomaly	Total
Endocardial approach		
- Seely et al. (Duke) 1968-1983	1.5	2.6
- Iwa (Kanazawa) 1973-1983	0	3.7
- Cox et al. (Duke-St.Louis) 1980-1985	0.8	5.0
-Selle-Gallagher (Sanger clinic) 1983-1987	1.0	2.0
Closed heart epicardial approach. Guiraudon (London,Ontario) 1980 - 1985	0	0

cases with symptomatic SVT due to preexcitation subjected to surgical resection of AP In all cases the endocardial approach was used and was combined with the epicardial dissection in 3 patients with anteroseptal AP.

Early results one weak postoperatively revealed recurrence in one patient. Follow up for 6 months revealed two cases of the whole group with recurrence 18.18%.[215]

Regardless of the technique chosen, the results should approach (if not achieve) a 100% initial operation success rate with an operative mortality in elective uncomplicated cases approaching 0%. These excellent results argue strongly for the consideration of surgical ablation of accessory pathways as the preferred alternative to a lifetime of medical therapy in these predominantly young, otherwise healthy patients.[216]

Surgical techniques used in management of AVN reentrant tachycardia has a success rate of about 95%, whereas, heart block is a potential problem. Less experience has been acquired with surgical treatment of focal atrial tachycardia, atrial flutter and atrial fibrillation.[139]

Cleary, VT presents a more formidable problem than SVT to the surgeon. There are several reasons for this :

1) A three dimensional complex scar is present.
2) Fragment, low-amplitude electrograms are recorded during mapping.
3) Rhythms are unstable.

4) Patients frequently have limited cardiovascular reserve.

5) The underlying disease is progressive.

6) There is frequently a need for other interventions such as revascularization.

7) Understanding of the underlying substrate is far from complete.

Despite these problems, results obtained thus far have been increasingly gratifying. Further refinements in mapping methods as well as ablative methods can be expected to improve these results even further.[31]

Several progress reports on the series of patients from the university of Pennsylvania have been published. The basic operation used by most surgeons (some form of subendocardial resection) was developed at that institution, and the continuous follow-up of patients in that series has been excellent. As a result, the Pennsylvania series has served as the "gold standard" against which all other methods of surgical intervention for VT must be measured.[137]

In **1986, Swerdlow et al.**[217] reported the 5-year follow-up of the Stanford series, and in **1987, Ostermeyer et al.**[218] published their 6-year results from Dusseldorf, while, **McGiffin et al.**[219] reported the 5-year results of the Alabama series. In addition to the above mentioned series **Cox** [137] has included his combined series of patients operated on at Duke (1978-1983) and at Barnes Hospital in St.Louis (1983-1988).

The known characteristics of the five long-term series being evaluated are listed in (table 10). It is unclear

Table (10): Characteristics of five series used to assess long-term results of surgery for refractory ischemic VT.
After Cox (1989).[137]

Series	N	Operative technique	Percent map-guided	Cardioplegic arrest	Normothermic beating heart	Operative mortality rate (%)	Postoperative reinducibility rate (%)
Pennsylvania series	100	Localized SER	94	Yes	No	9	28
Stanford series	98	Multiple procedures	79	----	---	17	32
Dusseldorf series	93	Primarily PEEV **	99	No	No *	5	19
Alabama series	123	Multiple procedures	--	Yes	No	21	38
Duke-Barnes series	65	EERP & cryosurgery	100	No	Yes	14	2

** PEEV = Partial encircling endocardial ventriculotomy

* Moderate hypothermic fibrillating heart.

whether the unusually low incidence of postoperative reinducibility (2%) in Duke-Barnes series is due to the extensive intraoperative mapping, the avoidance of cardioplegic arrest, or the addition of cryosurgery than can be accomplished with resection alone.[137]

However, it is believed that performing the surgical procedure in the warm beating heart is perhaps the most important factor in preventing postoperative reinducibility. The long-term survival rates for patients undergoing surgery for refractory ischemic VT are listed in (table 11). These results include all operative deaths and all late cardiac and non cardiac deaths. These data would indicate that, like many other forms of disease that are treated surgically, the 5-year survival rate after VT surgery may be an accurate indicator of the true cure rate of the patient's problem.[137]

Table (11): Long-Term results of surgery for refractory ischemic ventricular tachycardia. After Cox (1989).[137]

Series	N	30-day survival (%)	5-year survival (%)	6-year survival (%)	7-year survival (%)	8-year survival (%)	9-year survival (%)
Pennsylvania series	104	91	67	67	----	-----	-----
Stanford series	98	83	53	----	----	-----	-----
Dusseldorf series	93	95	70	----	----	-----	-----
Alabama series	123	79	33	----	----	-----	-----
Duke-Barnes series	65	86	68	60	60	60	60
Total	483	86	58	64	60	60	60