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Hock (Next friend of) v. Hospital for Sick Children

Between

**Jessica Aaren Hock, an infant under the age of eighteen years
by her next friend Arthur John Hock and the said Arthur John
Hock, plaintiffs, and
The Hospital for Sick Children, William Williams, D. Salter,
W. Feteih, P. Gow, D. Willson, G.C. Mullins, Jeffrey
Smallhorn, A. Gerber and Desmon Bohn, defendants**

[1995] O.J. No. 1104

Court File No. 18147/84

Ontario Court of Justice (General Division)

Hawkins J.

Heard: May 30, 31, June 1-3, 7-10, 14-17, 21-24, 27-30 and
July 4-8, 1994.

Judgment: April 24, 1995.

(15 pp.)

*Medicine -- Liability of practitioners -- Negligence or fault -- Surgical operations by doctors --
Standard of care.*

This was an action for damages for personal injuries. The infant plaintiff was born with a congenital heart defect. Shortly before she turned five years old, an open heart surgery was performed on her at the defendant hospital to repair the defect. Following the operation, she developed a low level of blood output which resulted in an inadequate supply of oxygen to her brain which, in turn, caused her to suffer massive brain damage. Further surgery was performed subsequently which eliminated the child's circulatory problem. However, the brain damage was irreversible. The plaintiff sought damages against both the cardiologist and the surgeon who handled her case for failing to communicate with each other in order to determine the best course of action with respect to treating the patient.

HELD: The action was allowed. The failure to remove obstructive material during the first operation caused the subsequent brain damage. Also, insufficient attention was paid to the repeated observations in the plaintiff's medical records to anomalous muscle bundles. There had been no satisfactory answer as to why the corrective surgery techniques applied in the second operation were not applied in the first.

Counsel:

Robert S. Hart, Q.C., and Richard J. **Sommers**, Q.C., for the plaintiffs.

Harry Underwood and Tracey A. Pearce, for the defendants, W. Williams, G.C. Mullins, A. Gerber, J. Smallhorn and D. Bohn.

W.D.T. Carter and P.J. Hawkins, for the defendants, Hospital for Sick Children, R. Gow, D. Willson and W. Feteih.

HAWKINS J.:-

1. INTRODUCTION

1 Jessica Hock is sixteen years old. She was born with a congenital heart defect called "Tetralogy of Fallot". On 26 May 1983, when she was just shy of five years in age, open heart surgery was performed on her at The Hospital For Sick Children in Toronto to repair the defect. Following the operation she developed a low level of blood output which resulted in an inadequate supply of oxygen to her brain causing, in turn, massive brain damage. Further surgery was performed on 29 May 1983 which eliminated the child's circulatory problem. The brain damage, alas, was irreversible. Jessica will require supervision all her life.

2. THE HEART

2 The "rightness" and "leftness" of parts of the body are always spoken of from the owner's perspective. The heart is a two-stroke four-chambered muscle/pump. The upper chambers on each side are called the "atria" and the lower chambers are the ventricles. De-oxygenated blood arrives at the right atrium via the superior and inferior venae cavae. It passes through a tricuspid valve into the right ventricle. When the heart contracts this de-oxygenated blood exits the right ventricle via the pulmonary trunk passing through the semi-lunar pulmonary valve. It is then carried by the pulmonary arteries to the lungs for re-oxygenation.

3 Blood vessels leading to the heart are veins and those leading from the heart are arteries. Veins usually carry de-oxygenated blood and arteries carry fresh oxygenated blood. The pulmonary arteries are an exception, carrying, as they do, de-oxygenated blood from the heart to the lungs. The

fresh blood returns to the heart via the pulmonary veins (the second exception) where it enters the left atrium. It then passes through a bicuspid valve into the left ventricle where it waits to be sent into the body's arteries through a semi-lunar valve and into the aortic system.

4 The chambers fill when the heart relaxes (diastole) and empty when the heart contracts (sistole). The atria contract just ahead of the ventricles. This drives the blood from the atria into the ventricles and, because of the elasticity of the chambers, gives the ventricular contractions an extra boost.

3. THE TETRALOGY OF FALLOT

5 Tetralogy of Fallot, as the title itself indicates, describes a heart defect with four components: (a) pulmonic stenosis (this describes a thickening or narrowing of the pulmonary trunk); (b) ventricular septal defect (simply a hole in the wall ("septum") separating the two ventricles); (c) an aorta which overrides both ventricles; (d) thickening ("hypertrophy") of the right ventricle.

6 The essence of the problem is the difficulty in moving blood from the right ventricle through the pulmonary valve and on to the lungs. It is a condition which is self-aggravating. The ventricular muscles work extra hard to force the blood through the right ventricular outflow tract. Muscles which work hard become enlarged which further restricts the size of the ventricular space.

7 The objective of corrective surgery is to relieve the narrowing of the right ventricular outflow tract and to patch the hole between the ventricles.

4. THE PRE-OPERATIVE DIAGNOSES

8 There were, as I have said, two operations, the first on 26 May 1983 and the second on 29 May 1983.

9 I shall refer to tests and diagnoses which preceded the first operation as "pre-operative" and those which took place between the two operations as "inter-operative".

10 Cardiac catheterization involves introducing a catheter into the heart chamber. The catheter is capable of recording pressures, oxygen levels and other data and of introducing an opaque dye. The passage of the dye is recorded by an x-ray camera which provides valuable information about the functioning of the heart.

(a) 3 August 1978

11 Jessica had her first such catheterization on 3 August 1978, when she was just over a month old, at The Hospital for Sick Children. The report of that catheterization signed by Dr. J.A. Culham indicates "prominent muscle bundles are present along the septum and in the proximal infundibulum". That report concludes with numbered impressions. They are: (1) "ventricular septal defect" (the hole in the wall between the left and right ventricles) "membranous, moderate sized";

(2) "atrial septal defect, small"; (3) "pulmonary stenosis, valvar" (i.e. narrowing of the infundibular chamber near the semi-lunar valve); (4) "query sub-valvular stenosis (pulmonary) due to anomalous muscle bundles". [reference Z-17:5]

(b) 29 March 1982

12 Jessica's condition was discussed at a cardio-surgical conference on 29 March 1982 (though she was not an in-patient at the time). A report of that conference signed by Dr. T. Izkawa, indicates that the catheterization of August 1978 was reviewed and it was noted that pulmonary stenosis at the right ventricular level consisted mainly of an anomalous muscle bundle. That conference concluded that Jessica should be brought in for further catheterization and surgery in May 1983 when she would be nearly five years of age. (The report says nearly four years of age but, since she was born 22 June 1978, she was nearly five by May 1983). [reference Z-9]

13 (c) The hospital document headed "History" and undated but clearly generated at the time of Jessica's admission on 23 May 1983 refers to the 1978 catheterization in the following words "3.8.78 cardiac cath showed VSD (with) PS at valvar and RV level. The latter consisted mainly of anomalous muscle bundle." [reference C-2:1]

14 (d) On 24 May 1983 a pre-operative catheterization was carried out. The report of that catheterization is arranged with boxes to be ticked off where appropriate. The box for "muscle bundle" is left blank. [reference Z-10:5] This catheterization was conducted by Dr. J.F. Smallhorn. Dr. Smallhorn is a cardiologist with special interest in echo cardiography. Nevertheless he performed catheterizations one day a week and May 24, 1983 happened to be one of his days. Dr. Smallhorn was aware of the 1978 catheterization results and in his view that earlier catheterization did not disclose any anomalous muscle bundles. In his catheterization of 24 May 1983, Dr. Smallhorn did not see anomalous muscle bundles and in his report on the echo cardiogram taken one day earlier he reports "there was no evidence of any anomalous muscle bundle in the right ventricle". [reference C-26:2]

5. THE FIRST OPERATION

15 Open heart surgery for the repair of Tetralogy of Fallot was performed on Jessica on 26 May 1983 by Dr. William Williams. I consider the best evidence of the procedures carried out to be the reports generated at the time. A report dated 26 May 1983 and initialled by Dr. Williams is found at [C-11:8]. I summarize it as follows: the suspected atria septal defect was found not to exist and the ventricle septal defect was patched. The pulmonary artery was incised longitudinally and a patch placed over the incision which allowed the vessel to expand. The patch also contained a valve leaflet which repaired the defective semi-lunar pulmonary valve.

16 It is significant that in this contemporary document there is no mention of any incision to the moderator band or of any excision of any material.

17 Dr. Williams wrote a letter report to Dr. Izukawa (the referring OHSC doctor) dated 26 May 1983. [reference Z-7] It reports on the patching of the ventricular septal defect and the patching of the right ventricular outflow tract. There is, again, no mention of any "dividing" of or any incision to the moderator band nor of the excision of any tissue.

6. THE POST-OPERATIVE COURSE

18 Jessica went to the Intensive Care Unit (ICU) at approximately 5:30 p.m. on 26 May 1983. Between 7:15 p.m. and 10:30 p.m. that day she experienced a number of incidents of tachycardia. Tachycardia describes extremely fast heart beats and it is a condition which constitutes a major life threat. Very poor haemodynamic output also characterized Jessica's course in the ICU. Much time was taken at trial with a second by second analysis of Jessica's course in the ICU and with a dose by dose analysis of her pharmacological treatment. It was an analysis which, in my view, totally lost sight of the conditions under which ICU staff carry out their duties. Lawyers have the luxury of time in which to analyze and a known result against which to compare their analysis. ICU staff have neither. Nothing in the evidence persuades me that the ICU staff failed in any way to furnish proper care to Jessica Hock.

7. INTER-OPERATIVE DIAGNOSIS

19 By May 28, Jessica's condition had deteriorated to a critical level. She was given echo cardiograms between 2:00 and 3:00 p.m. which disclosed the apparent presence of a muscle bundle in the mid-right ventricle cavity, and in the first hours of Sunday, May 29 she was re-catheterized. This catheterization indicated the presence of muscle bundles both by the ticking off of the appropriate box and by these words in the section for principal diagnosis "post-op Tetralogy RV muscle bundles".

8. THE SECOND OPERATION

20 This took place between 5:00 a.m. and 7:00 a.m. on Sunday, 29 May 1983. The cardiac operation sheet notes under the section for PULMONARY INFUNDIBULAR STENOSIS the entry "moderator band incompletely cut. Divided and incision of parietal bd". [reference Z-6:3]

21 On the operation sheet for the earlier operation under the comparable section there is no mention of the moderator band having been cut at all. [reference Z-5:3]

22 Dr. Williams' report to Dr. Izukawa dated 30 May 1983 adverts to his having half-divided the moderator band during the first operation and completing the division during the second operation as well as incising some parietal muscle bands. Again, I emphasize that no document concerning the first operation that was created before the second operation makes any mention of any cutting or "dividing" of the moderator band. In fact no mention whatever is made of the moderator band.

9. THE AFTERMATH OF THE SECOND OPERATION

23 Jessica recovered physically. It will never be known with medical certainty whether the second operation cured her pulmonary stenosis or whether she would have recovered anyway following the first operation.

**10. THE FAILURE OF DR. WILLIAMS AND
DR. SMALLHORN TO COMMUNICATE**

24 Dr. Smallhorn did the pre-operative echo cardiogram and catheterization, the purpose of which was to assist the surgeon to understand the probable and possible problems to be encountered during the surgery. Jessica's medical chart was strewn with references to "prominent muscle bundles" "anomalous muscle bundles" "muscle bundles". Dr. Smallhorn's reading of the echo cardiogram and angiograms was that there was "no evidence of any anomalous muscle bundles in the right ventricle". In the face of his reading of a diagnostic test which was diametrically opposed to all that had gone before I would have thought it appropriate for him to make a point of discussing his negative findings with the surgeon before the surgery. Asked in-chief if he discussed the pre-operative angiogram with Dr. Williams before the surgery, Dr. Smallhorn said "No. I think it probably unlikely I did review it with him, because Jessica had the surgery on the Thursday and we usually have our surgical meetings on the Monday. So he probably personally reviewed it himself and plus or minus with the radiologist, but again, speculation. I don't know."

25 The question was put again in cross-examination eliciting this answer: "I can't remember, but more than likely I didn't review it with the surgeon".

26 What does Dr. Williams have to say? On his examination for discovery in 1978 he was asked to: "Can you tell me when you would have looked at it (the pre-operative echo cardiogram) pre-operatively?"

A. Probably the day of the catheterization. Dr. Smallhorn would have done both so I likely reviewed both with him at the same time."

27 At trial, Dr. Williams said the following:

Q. You also told us that you personally reviewed the cineangiogram film on Tuesday the 24th or Wednesday the 25th.

A. That's correct.

Q. You also told us that you discussed the film with the cardiologist who would have been Smallhorn, or his resident or the radiologist.

A. Yes, and I have no record as to who.

Q. Well, in fact, this discussion is not documented anywhere in the chart?

A. That's correct.

28 I find as a fact that it was Dr. Smallhorn's duty, in the face of his finding of no anomalous muscle bundles and in the face of frequently-repeated contrary findings to have consulted with Dr.

Williams before the surgery to determine the best strategy.

11. THE FAILURE OF DR. WILLIAMS TO REMOVE OBSTRUCTIVE MATERIAL DURING THE SURGERY OF MAY 26, 1983

29 I am familiar with the adage that medicine is an art not a science. I also appreciate that surgery calls for the exercise of judgment and that no surgeon is always right or always successful. In his description of what went on during the first operation, Dr. Williams strikes me as inappropriately vague. The following extracts are all from his evidence in chief on June 14th and all refer to the first operation:

Page 68:

"we resect or cut into any muscle bundles that were prominent in the lower part of the infundibular chamber".

Page 79:

"so having opened the main pulmonary artery, pulmonary valve and infundibular chamber and resected muscle at the osteal level".

Page 82:

- Q. Now have you dealt with each of the ways that you attempted to relieve any obstruction in any hypertrophy (sic) muscle in the right ventricle?
- A. ... We excised muscle that seemed obstructive or incised it including half the moderator band.

Page 83:

"well we dealt with the hypertrophied muscle by first of all opening the ventricle and the opening extended below the so called osteo point of narrowing and we resected muscle or excised muscle from the right and left side the septal and parietal muscle bands ... and incised in addition the moderator band".

Page 87:

"well we want to put it (the pressure needle) in the inflow side of the chamber below the area that we have resected".

30 In these passages there are five references to removal of tissue (resect/excise) and two to cutting into (incise). There is not one shred of evidence that any tissue was sent for pathological examination as is required by law and not one single mention in any contemporaneous record of any such excision or incision.

31 I find on the balance of probability that the failure to excise sufficient tissue to correct the infundibular stenosis caused the subsequent brain damage and that insufficient attention was paid to the repeated observations in Jessica's medical records to anomalous muscle bundles. There has been no satisfactory answer as to why the corrective surgery techniques applied in the second operation were not applied in the first.

32 Accordingly, I find Drs. Smallhorn and Williams liable to the plaintiffs. Drs. Smallhorn and Williams were represented by the same solicitors throughout and by the same counsel at trial. As must follow from the arrangement, and is a fact, they have made no claim against each other for contribution and indemnity. I therefore, express no opinion in these reasons as to the relative degrees of fault as between them. Plaintiffs are to have judgment against Drs. Smallhorn and Williams in accordance with minutes of settlement which I have approved and which also dispose of the question of costs.

HAWKINS J.

qp/d/tld/DRS/DRS/DRS

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