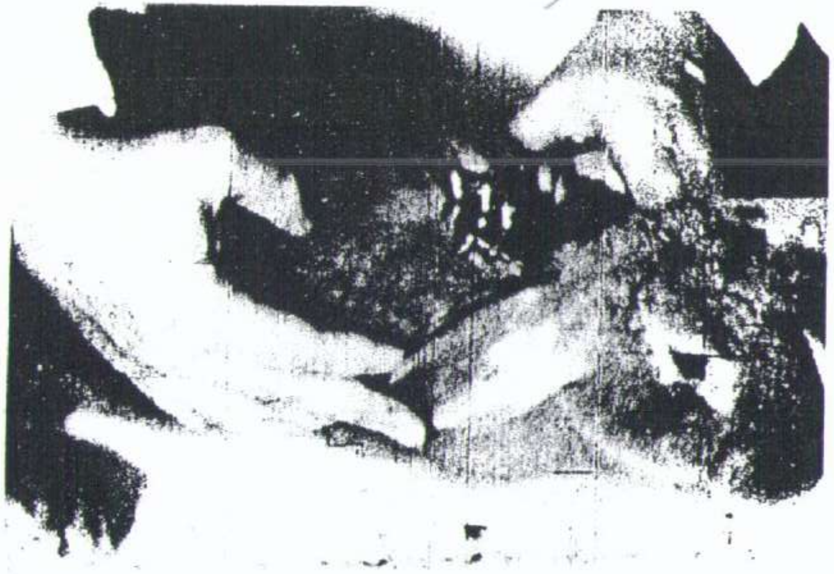

Fig. 13 - Splint on 2nd dorsal vertebra of another rabbit resulting in heart symptoms.

Cleveland CS "Researching ... ... College, Kansas City Missouri. ICA Science Review of Chiropractic 1965 A (Aug) 1(4): 5-28

RESEARCHING THE SUBLUXATION ON THE DOMESTIC RABBIT A PILOT RESEARCH PROGRAM CONDUCTED AT THE CLEVELAND CHIROPRACTIC COLLEGE, KANSAS CITY, MISSOURI

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INTRODUCTION

It should be understood that this is a brief resumé of a series of pilot experiments to determine the advisability of conducting an extended series of rather costly, complicated, and involved experiments using the necessary control animals and control procedures to determine the validity of the chiropractic principle on laboratory animals.

The six basic principles underlying the philosophy or basis of chiropractic are:

A. That the body (including the circulatory, endocrines, respiratory, digestive systems, etc.) is controlled through the nervous system.
B. That a vertebra becomes subluxated.
C. That this subluxated vertebra impinges the structures (nerves, blood vessels and lymphatics), passing through the intervertebral foramen or opening.
D. That because of such pressure or impingement, the function of that cross level of the spinal cord, and the conduction of nerve or mental impulses through its connecting spinal and autonomic nerves are impaired.
E. That because of such lack of nerve supply (or innervation) to the affected organ or parts, such organs or parts become predisposed to disease, or are functionally or organically diseased.
F. That the adjustment of the subluxated or displaced vertebra removes the pressure from the nerves and other structures passing through the intervertebral foramen resulting in normal nerve supply, thus restoring the part to health both functionally and organically.

EXPERIMENTAL PROCEDURE

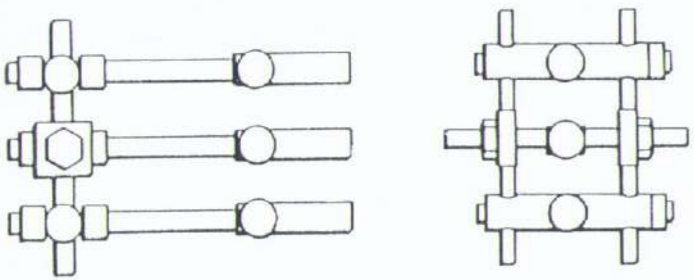
The large domestic rabbit was chosen as the experimental animal because of the similarity in the action of its spine and nervous system (as well as the other systems) to that of man. The high cost of dogs and cats, their distinctive personalities, and the problems involved in their handling and care were additional reasons for choosing the rabbit.

The anesthetic most frequently used was phenobarbital, injected into the auricular vein of the ear. Etherization by means of a trachial cannula was used in some experiments.

A two month conditioning period was spent during which the caged animal was placed in the general laboratory and allowed to become conditioned to the traffic of students in and out of the laboratory. The animal could become accustomed to the human voice, and get used to the usual odors associated with the laboratory. The rabbits were fed, talked to and handled by students. Various examinations (such as heart examinations, blood pressure checks, and respiratory checks) were performed by students. Students also helped to establish the various norms of the animals (such as breathing rate, heart rate, blood counts, hemoglobin determinations, coagulation time tests, bleeding time tests, blood sugar levels and urinalysis). All of this not only established norms, but also helped to condition the animal to laboratory procedure to the extent that the average rabbit would remain where it was placed on a laboratory table without being drugged.

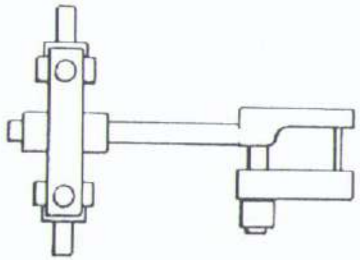
A mechanical adjustable splint was designed to make it possible to subluxate a specific vertebra in relation to the one above it and below it.

We were aware that splints were being used on human beings, in which pins were inserted directly through the skin and flesh of a person, driven into the bone at odd angles, and used to hold pieces of bone in place. We talked to these patients, and once we were convinced that there was no pain associated with this type of splint after it had been attached (and of course it was attached under an anesthetic), we reasoned that if it did not produce pain in the human being, it would not produce pain in the rabbit.



A. Side view of splint. B. End view of splint.

Fig. 1



C. Top view of splint.

Fig. 1

The splint we designed and used consisted basically of three pieces, each of which attached to the spinous processes of three adjacent vertebrae (figure 1). Each piece of the splint was fastened to a spinous process by a stainless steel needle, a little smaller than the old-fashioned victrola needle. This needle was pressed

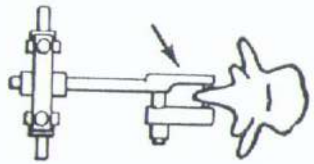


Fig. 2 Arrow points to needle pressed through the spinous process and into the eyelet.

through the spinous process and into an eyelet on the other side of the piece as shown in figure 2. This attached the piece firmly to the spinous process. The same procedure was followed on the spinous processes of the vertebra immediately above and immediately below the vertebra being subluxated.

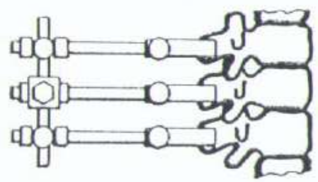
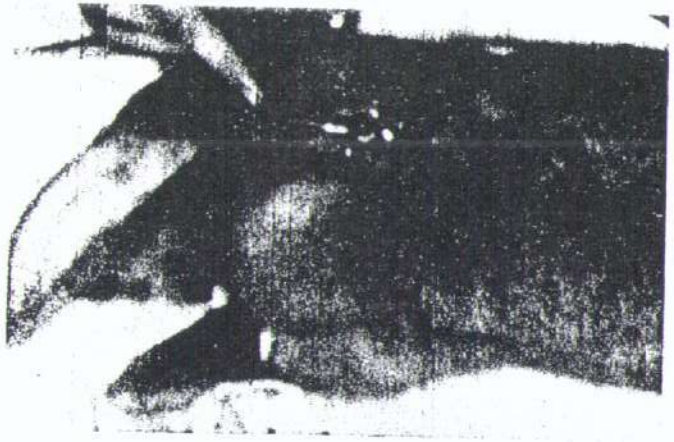
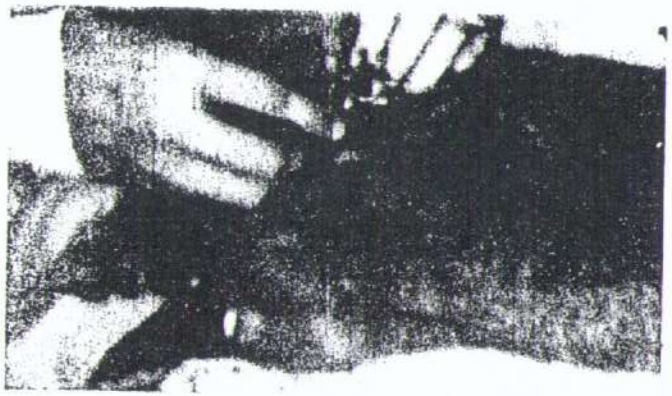


Fig. 3 A. Side view of splint in place on spinous process.



B. Attaching prongs to spinous of the rabbit.



C. Attaching superstructure to splint.

Fig. 3

The superstructure of the splint was then attached to the three pieces which were attached to the three adjacent vertebrae (figure 3). The superstructure of the splint is so designed that the piece immediately above and the piece immediately below the central piece is rigidly fixed, and these pieces anchor the splint to the spine. Only the central piece is adjustable. The central piece could be moved in any direction to produce any degree of subluxation, foramen occlusion, and nerve pressure desired. This was accomplished by turning the screw devices the number of turns in the necessary direction until the vertebra was visibly subluxated.

SPINAL SUBLUXATION AND NERVE PRESSURE

In the December 24, 1960 issue of the Journal of the American Medical Association the question was raised: "Is it possible to manipulate spinal vertebrae by hand to relieve underlying pathology?" Dr. Edward L. Compere answered that "many orthopedists as well as osteopaths have demonstrated that it is possible to manipulate the spinal vertebrae by hand and relieve pressure on nerve roots. The exact nature of the lesion which responds to this type of manipulation has never been fully established. In all probability in the case of a subluxation or slight slipping of the articular facet in a spine where the neural foramina may be narrowed by osteophyte formation or because of edema of the surrounding soft tissue, manipulation may readjust the articular processes sufficiently to relieve pressure on the nerve. I have personally relieved patients who were in severe pain by a manipulation intended to loosen up tension on articular facets in the spine, or to restore a normal anatomic relationship between vertebral bodies, so that there is no longer an impingement on a nerve root. Exactly what is accomplished by these manipulations no one has fully explained. The fact that they do definitely relieve some of these patients, especially those who have had their back pain or sciatica for only a short time, cannot be denied. Anyone who is familiar with the simple manipulative procedures which are usually carried out should try them before resorting to more definitive procedures."

METHOD

Briefly, our procedure was this: First we studied the norms of the animal. (The rabbit's normal blood pressure, its normal heart rate, its normal laboratory findings, and all the various tests that we had made to establish the norms.)

CHART NUMBER ONE

1. Breathing rate (handled conscious rabbit)--60 per minute.
2. Heart rate (handled conscious rabbit)--180 per minute.
3. Blood pressure (indirect)--125/90.
4. Red cell count--6,250,000 to 6,300,000.
5. Hemoglobin--12.9 to 13.4 gms. per 100 ml.
6. White cell count--4,000 to 13,000 per cu. mm. 7,900 average.
7. Normal blood sugar--80 to 110 mg. per 100 ml. of blood.
   7A. Convulsive sugar level = less than 35 mg. per 100 ml. of blood. Relieved bv injection of glucose.
8. Gastric juice--pH. 1.6.
9. Gait and posture--Easy, symmetrical, alert.
10. Eyes--Bright, follow moving object symmetrically.
11. Pupils--React to light variations quickly and symmetrically.
12. Membranes of nose, mouth and pharynx--Pink, clean and uniform in appearance.

We then X-rayed the rabbit's spine and measured out each individual vertebra, comparing it with the one above and the one below, to establish the subluxations that the rabbit already had. We then put the animal under an anesthetic, and made a small incision over the three adjacent spinous processes, and attached the splint to each of the three exposed spinous processes as previously described.

After the splint was attached to the spine of the rabbit, the rabbit was X-rayed a second time with the splint attached to the spinous processes, but not subluxated. Under fluoroscopy, we subluxated the center vertebra to the desired position, causing the desired amount of nerve pressure.

The rabbit was then X-rayed for the third time with the subluxator splint on the spine and the vertebra subluxated. We then allowed the animal to come out from under the anesthetic and wear this splint, holding the vertebra in a state of subluxation, for a fixed period of time (ranging from several hours to several months).

During this time we studied the pathology that developed as the animal went from its healthy state to its diseased state. We made the usual examinations and laboratory tests during this time to determine the extent of pathology developed. After the pathology had run its course, we adjusted the splint so that the vertebra returned to its normal position prior to mechanical subluxation.

We then studied the retracing schedule that the animal goes through from the diseased state back to health.

CASE NUMBER ONE

A large, laboratory conditioned male rabbit was used. Examination results and all tests were within normal range as shown in chart #1. Spinal X-rays revealed no subluxations of significance. The subject was anesthetized with phenobarbital injected into the auricular vein. The usual aseptic precautions were taken. The four legs of the subject were tied to the animal board to cut down any reflex action that might occur during surgery. The skin over the lower dorsal area was shaved and cleansed first with green soap and then with alcohol. A short superficial incision was made over the spinous of the 11th and 12th dorsal and the 1st lumbar vertebrae, exposing the spinous processes. The splint was attached to the spinouses of the 11th and 12th dorsal and the 1st lumbar vertebrae in the manner previously described. A second control X-ray was taken with the splint on the spine, but without the vertebra subluxated.

The subject was then put under a fluoroscope and the 12th dorsal vertebra was subluxated posterior and right. This was accomplished by turning the screw device the number of turns in the necessary direction until the 12th dorsal vertebra was visibly subluxated.

A third X-ray was taken with the splint on the spine and with the 12th dorsal vertebra subluxated.

The subject was allowed to come out from under the anesthetic wearing the splint which held the 12th dorsal in a subluxated position. The heart beat was slow and strong. Urination was more copious than normal for four days, then returned to normal and finally became very scanty with a high specific gravity. The urine was albuminous.

Microscopic urinalysis revealed the presence of blood casts, most of which were curved, indicating that the convoluted tubule was the site of casting. The blood casts appeared to be basically hyaline studded with erythrocytes.

The abdomen became very distended (figure 4). There was a dullness on percussion. When the finger tips were placed on one side of the abdomen and the other side of the abdomen percussed, a definite rippling could be felt with the finger tips. The subject experienced irregular, difficult respiration.

Fluid withdrawn from the mid-abdominal region was a clear, greenish-yellow color with a specific gravity of 1.010 and alkaline in reaction.

After allowing the vertebra to be subluxated for 30 days, the splint was mechanically adjusted to normalcy. In 6 to 8 hours the rabbit began to urinate very profusely. The rabbit died within 18 hours. (Subsequent experiments pointed to the fact that the adjustment was too abrupt. This evidence will be presented in a subsequent monograph.)

Post mortem studies revealed that there had been a definite subluxation and intervertebral foramen occlusion, resulting in definite nerve pressure on the 12th dorsal spinal nerves due largely to the posteriority of the subluxated vertebra. This supports the view of Lee Hadley, M.D., quoted in this article (page 16).

The surface of both kidneys were granular and, on section, the tissue of the kidney was tough and resistant.

CASE NUMBER TWO

Case number one was performed before we had decided to take moving pictures of our results, consequently we have no pictures

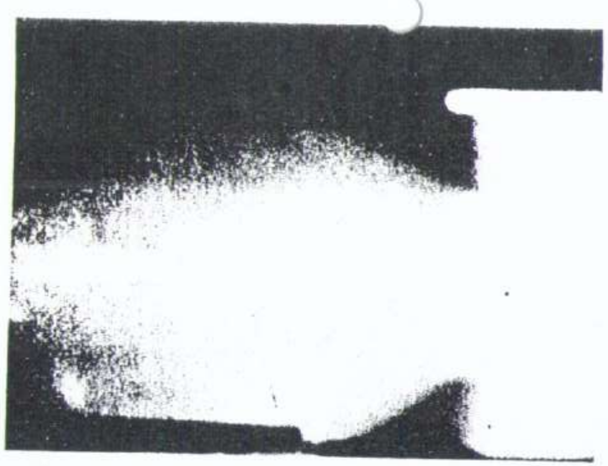


Fig. 4 X-ray of rabbit (Case #1) showing distended abdomen.

showing the distended abdomen other than the abdominal distention shown in the X-ray (figure 4). We decided to perform the very same experiment with the very same vertebra subluxated on another animal and take moving pictures of the symptoms and pathology as it developed.

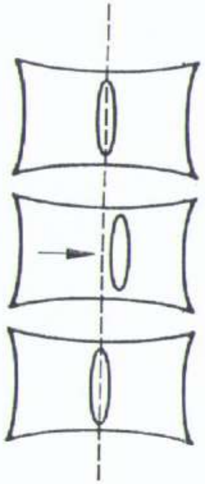


Fig. 5 Diagram of subluxation shown in X-ray. The center of fusion of the spinous of the 12th dorsal is posterior and right from a median line drawn from the center of fusion of the spinous of the vertebra above (11th dorsal) to the center of fusion of the spinous of the vertebra below (1st lumbar).

A large, well-developed laboratory conditioned male rabbit was examined and tested with the routine laboratory tests. All were within normal range. Spinal X-rays revealed no subluxations of significance. The same experimental procedure was followed in this case as in case number one. The same vertebra was subluxated to the same direction and degree in case number two (figure 5) as in case number one.

We obtained the same urinalysis picture as in case number one; however, no ascites was present. After several weeks the urinalysis picture became normal and still no ascites. For three months case number two wore the splint holding the vertebra in subluxation. No ascites developed.

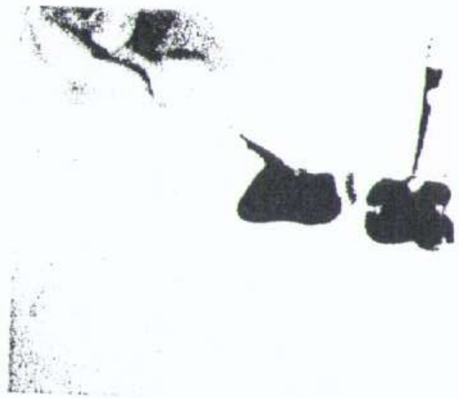
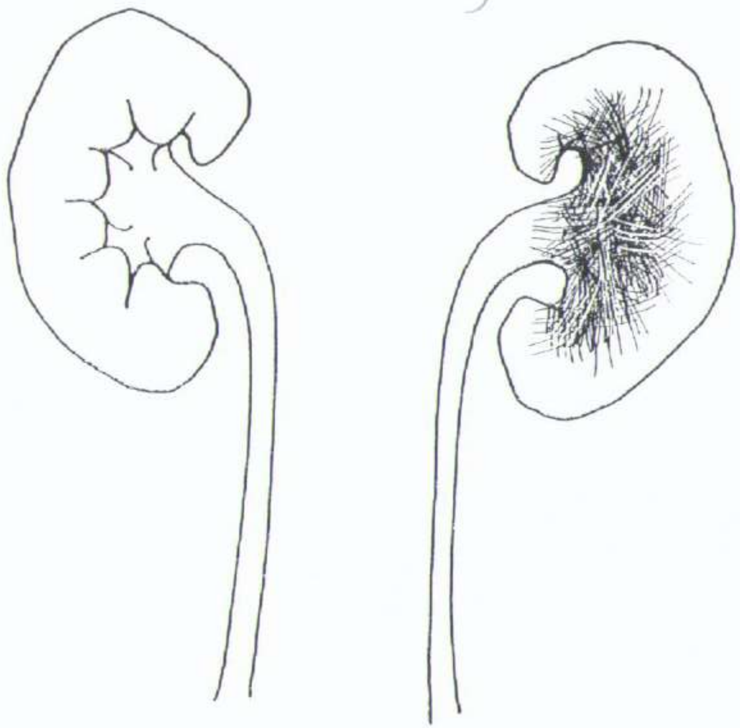


Fig. 6

A. Photo of kidney removed during post mortem of Case #2 being compared with normal kidney at left. Note fibrous mass in kidney at right.



B. Diagram of kidney with fibrous mass (right) compared to normal kidney.

Fig. 6

We decided to sacrifice the animal. Post mortem revealed there was definite subluxation and nerve pressure. When the kidneys were examined to determine what was responsible for the abnormal urinalysis picture that developed immediately following the subluxation, a sagittal section of the kidney revealed that in the center of one kidney there was a dense, white, fibrous tumor (figure 6).

Microscopically, sections showed that the tumor was made up of white fibrous connective tissue.

SUMMARY

These experiments on cases number one and two (along with many, many other experiments) have shown us that we cannot predict with any degree of accuracy what disease will be caused when we subluxate a specific vertebra. Our experiments show, however, that we can fairly accurately predict what organ or area will become affected when we subluxate a specific vertebra.

In cases one and two, the 12th dorsal vertebra was subluxated the same degree, posterior and right. In both cases, the kidney was affected. However, it was affected differently in each case. This causes us to believe that we may accurately predict the organ or area affected by a subluxation, but not predict how the organ has been affected.

The result of this experimental work has been quite outstanding. We have caused heart diseases, valvular leakages, paralysis, arrhythmia, vasomotor paralysis, dropsy, kidney conditions, formation of tumors, and a host of different diseases merely by subluxating vertebrae causing nerve pressure.

The case histories mentioned in the previous paragraph will be presented in this publication at a later date, however, conclusions drawn from them and sources dealing with vertebral subluxation, nerve pressure and disease will be stated at this time.

CONCLUSION

Following are quotes from sources pointing up the relationships between the function of the nervous system and the cause of disease. We offer these as an addendum to the previous text.

The function of the nervous system is to control and coordinate the organs and structures in the body.

"Its function is to control and co-ordinate all the other organs and structures, and to relate the individual to his environment."[1]

After enumerating all the systems of the body such as, the circulatory, respiratory, digestive, excretory, muscular, skeletal, etc., Haliburton states that "Over and above all these is the nervous system (brain, spinal cord and nerves), the great master system of the body which presides over, controls and regulates the functions of the other systems."[2]

"Effect of injury to the Nerve Supply. Trophic Nerve Involvement. Nerve involvement may account for pathological defects in bony structures. This may be from injury to the trophic (controlling the growth) nerves themselves or actual impingement of nerve trunks on bony structures."[3]

"Not only are nerve cells trophic for peripheral tissue, but some nerve cells are trophic for other nerve cells, and some nerve cell systems trophic for other nerve cell systems."[4]

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1) Gray, Anatomy of the Human Body, pg. 18.
2) Haliburton, Physiology, pg. 2.
3) Sante, Principles of Roentgenological Interpretation, pg. 66.
4) Selling, Synopsis of Neurosurgery, pg. 65.

Vertebrae can become subluxated causing foramen encroachment, and pressure on nerves. The following information, reprinted from The Medical Times is printed with figure indications. These figures cannot be reprinted because of copyright laws. Interested doctors should write the ICA editorial office for a reprint of the original article.

"These studies are the outgrowth of observations coordinating the radiographic and morphologic studies of cadaver spines. The specimens were supplied by the Anatomy Department at Syracuse University Medical College. Following radiographic examination the nerve roots were removed, embedded in paraffin and the section stained with hematoxylin eosin.

"An examination of the normal lumbar foramen section (Fig. 1) shows the nerve root (N) or its ganglion occupying only about 1/6 to 1/4 of the opening. Surrounding the nerve is a generous reserve cushion space containing blood vessels, lymphatics, fat and areolar tissue. These compressible structures constitute a safety factor during the normal foramen constriction incidental to spinal movement. In each of the four sections here shown the disc (D) is on the left side. The ligamentum flavum (F) is somewhat hypertrophied in one of these sections.

"Permanent constriction of the foramen from any cause, reduces the reserve cushion space. This predisposes to root pressure in the event of edema, hemorrhage, perineural inflammation or additional foramen encroachment.

"The most common cause of foramen constriction is disc degeneration and its secondary changes. These include: herniation of disc substance into the foramen, thinning of the disc with approximation of the pedicles, subluxation of the upper vertebra forward or backward upon the one beneath, hyperplasia of the ligamentum flavum, bony spur formation projecting backward from the disc or forward from the posterior joint, and lastly, subluxation of the articular process from below upward and forward into the foramen.

"Fig. 3 is the right lumbosacral spine of a male 83 years old. He had complained of low back pain for many years but no history of sciatica was obtained. (A) shows herniation of the 4th lumbar disc backward into the spinal canal (arrow) displacing the distal nerve roots. The post mortem myelograph corroborated this disc protrusion and showed displacement of the distal roots. The lateral radiograph (B) indicates encroachment of the 4th intervertebral foramen (arrow). On the lateral photograph (C) the numerals indicate the posterior portion of each intervertebral disc. This man had a subluxation of the 4th and 5th posterior articulations with encroachment of the 4th foramen. Impingement of the 4th superior articular process against the under surface of the 3rd pedicle is indicated by the long arrow. The articulations and foramina above this point were normal. At the 5th posterior joint there is impingement of the sacral articular process against the under surface of the 5th pedicle. A separate intra-articular ossicle, indicated by the arrowhead, has developed at this point.

"Nerve roots 2, 3 and 5 appear normal and are surrounded within the foramen by a generous cushion space. Nerve root 4, however, is compressed and flattened by a decrease in the size of the foramen incidental to the posterior joint subluxation as well as a posterior herniation of the disc seen just above and behind the numeral 4.

"Fig. 4D is a section (X325) of the 5th lumbar root. This reveals evidence of nerve degeneration one space below the disc herniation. This high power section, distal to the ganglion, shows normal nerve fibers on the right side and in the lower left corner. Elsewhere there were patches of degenerative change, vacuolation and multiple nuclei in the same tubule. The 5th foramen was not encroached as seen in 4B. The herniated disc at L4 pressed against the 5th root. The patchy degenerative changes distal to the 5th ganglion here visualized may have resulted from that pressure.

"These two cases illustrate how disc herniation within the canal may exert pressure upon a lower nerve root while contributing to encroachment of the adjacent foramen. The myelograph in each case would have shown a filling defect. In each the 4th foramen was encroached. Operative removal from the spinal canal of the 4th disc herniation, to relieve the 5th root pressure, would not have cured the foramen encroachment. Successful operative treatment would have necessitated, not only removal of the hernia for distal root pressure, but also proper attention to the adjacent foramen constriction.

"Fig. 5 right side, same cadaver as Fig. 4, shows subluxation of the 4th posterior articulation with impingement of the articular process (arrow). The 4th foramen is constricted, while the 3rd and 5th foramina are normal and show ample reserve safety cushion spaces about the corresponding nerve roots. This photograph gives some indication of the difficult problem to be encountered in decompressing such a foramen by facetectomy.

"Magnuson, in discussing 'the subject of the low back pain accompanied by so-called sciatica,' states that the 'approach has been mainly from the standpoint of root pressure from a ruptured intervertebral disc.' He adds, 'this viewpoint seems much too narrow. It is quite apparent that variations in the path of the nerves are frequent not only in the foramen but at the exit from the foramen.'

"The importance of intervertebral foramen encroachment at once becomes apparent in properly evaluating nerve root pressure. At any operation to relieve intraspinal nerve root pressure, a very careful search within the intervertebral foramen even to its most lateral limits is always indicated. The surgeon must assure himself that no foramen encroachment exists.

"The root compression may occur well lateral (Fig. 3C). The foramen is covered by elements of both articular processes. Various writers have therefore recommended a complete facetectomy (removal of the entire posterior articulation) for decompression of the encroached intervertebral foramen, if that condition is pressent."[5] (Note: Because of copyright laws the figures have been deleted.)

Pressure on nerves will interfere with the transmission of nerve impulses.

"Not infrequently nerves in the human body are constantly pressed upon, for example, by tumors, without giving rise to pain or any other response; finally the pressure may become great enough to cause a blocking."[6]

"In blocking a mixed nerve, the sensory fibers, especially those conveying the impressions of pain, are affected before motor fibers. Pressure applied to a nerve may also reduce its conductivity, as is seen in the going 'asleep' of a limb when its nerve is pressed upon for a sufficient length of time. The removal of the pressure may stimulate the nerve, producing, in the case of a 'sleeping' limb, the prickling sensation."[7]

Functions and structure of organs are altered because of lack of nerve impulses.

"Effect of injury to the Nerve Supply. Trophic Nerve Involvement. Nerve involvement may account for pathological defects in bony structures. This may be from injury to the trophic nerves themselves or actual impingement of nerve trunks on bony structures."[8]

"Not only are nerve cells trophic for peripheral tissue, but some nerve cells are trophic for other nerve cells, and some nerve cell systems trophic for other nerve cell systems."[9] This is further substantiated by the findings of Henry K. Winsor; University of Pennsylvania:

"The object of these necropsies was to determine whether any connection existed between minor curvatures of the spine, on the one hand, and diseased organs of the other; or whether the two were entirely independent on each other. The material came from

5) Hadley, Intervertebral Foramen Studies, Journal of Neurosurgery, pgs. 347-351.
6) Zoethout, Textbook of Physiology, pg. 129.
7) Ibid, pg. 132.
8) Sante, pg. 66.
9) Selling, pg. 65.

the Laboratory of Operative Surgery on the Cadaver, in the University of Pennsylvania, which is in no way responsible for reductions drawn. In all, fifty bodies were examined; the anterior thoracic and abdominal wall removed; the anterior surfaces of the bodies (centra) of the vertebrae were cleared so as to have them distinctly visible. The organs were examined. Notes were then taken in two columns. The first column contains descriptions of the organs which were found diseased; the second column contains descriptions of the curvatures found. When the diseased organs and the vertebrae in curvature belonged to the same sympathetic segments, the notes on each were placed opposite each other, in the two columns. When the diseased organs were not of the same sympathetic segments as the vertebrae in curvature, the notes on each were placed at different levels, case for case. It could be then seen at a glance whether the diseases found were at the same sympathetic segmental levels as the vertebrae which were parts of curvatures, or whether the diseased organs belonged to different sympathetic segments than from the vertebrae which were out of line. Unfortunately, through lack of space, the complete anatomic descriptions have been omitted, and only the tables, which will shortly follow, retained. Forty-nine of the fifty cadavers showed undoubted minor curvatures. The one exception had a slight smooth lateral curve in the thoracic region (such a curve has been considered normal by many). The very minor visceral pathology of this body (No. 12 in the omitted report) was in the segments immediately above or below the reported curve, in other words, it belonged to the segments which should form compensatory curves had such been reported. All curves and deformities of the spine were rigid, apparently of long duration; irreducible by ordinary manual force: extension, counter-extension, rotation, even strong lateral movements failed to remove them or even cause them to change their relative positions. Except that the attachments of the vertebrae and intervertebral discs were still preserved, the curvatures did not differ substantially from those seen in skeletons. Minor curvatures differ from the grosser curves of the Orthopedic surgeon only in degree, and in that their association with disease of organs belonging to the same sympathetic segment is more frequent than with gross curvatures. Of four gross curvatures (two of Pott's disease and two with gross lateral curves), diseased organs were not found to belong to the same sympathetic segments as the gross curvatures, but were of the same sympathetic segments as the minor curvatures (compensatory curves above and below the greater curves).

"In the tables which follow of the fifty cadavers examined, consecutively: column one contains the names of the organs which were diseased; column two contains the vertebrae in numerical order which were in curve and belonged to the same sympathetic segment as the diseased organs in column one; column three contains those vertebrae in curvature which did not belong precisely to the same sympathetic segment as the diseased organs in column two, but to slightly different segments therefrom; column four shows the sympathetic supply for the organs in column one; column five is a kind of check system to find the relative frequency with which pathology is found in the organs belonging to the same sympathetic segment as the vertebrae in curve. Statistics such as these are reliable, provided that all exceptions are tabulated as well as the rules. If all data proving and disproving are given equal consideration, there can be no deception. As an example, body No. 1 of the omitted necropsy reports showed an apparent discrepancy in that the kidneys were diseased, when the upper dorsal region was curved, probably a compensatory curve of the lower dorsal or upper lumbar region escaped observation. Histologists state that the nerve filaments entering or leaving a cord segment pass up three segments and down two segments in the cord by their short processes. If this be accepted, all instances of slight discrepancies (placed in column three) would do for placing in column two, and no discrepancies or exceptions need be filed. Abbreviations to save space in the tables which follow: Let C stand for cervical, D for dorsal or thoracic, L for lumbar, S for sacral,--regions, vertebrae, and ganglia of the sympathetic system.

	Vertebral Curvatures			
Visceral disturbances	of same sympathetic segment as visceral trouble	of neighbouring segment to discera	Sympathetic connections between vertebrae and diseased organ	Check system
Thymus diseased 2	C 7 & D 1 1 D 2, 3, 4 1	None 0	Inf. Cervical Ganglia	2
Pleurae adherent 21	Upper dorsal 19	Lower dorsal 2	Upper dorsal ganglia Lower dorsal ganglia	19 2 21
Lung diseases 26	Upper dorsal 26	Lower dorsal 0	Upper dorsal ganglia	26—26
Heart & pericardium, cases 20	Upper five dorsal 18	C 7 & D 1 2	Upper dorsal ganglia Inf. Cervical ganglia	18 2 20
Stomach diseases 9	(Dorsal 5—9) 8	1	Greater Splanchnic (Dorsal 5—9)	8
Liver diseases 13	(Dorsal 5—9) 12	1	Greater Splanchnic (Dorsal 5—9)	12
Chole-lithiasis cases 5	(Dorsal 5—9) 5	0	Greater Splanchnic (Dorsal 5—9)	5 5
Pancreas cases 3	(Dorsal 5—9) 3	0	Greater Splanchnic (Dorsal 5—9)	3
Spleenic affections 11	(Dorsal 5—9) 10	Dorsal (10, 11 & 12) 1	Greater Splanchnic (Dorsal 5—9) Lesser and least Splanch.	10 10 1 11
Inguinal diseases 2	(Dorsal 12) 2	0	Somatic nerve Ilio-inguinal	2
Kidney diseases 17	Dorsal 10, 11 & 12 14	Dorsal (5—9) 1 Lumbar 1 & 2 few	Least, Lesser and Greater Splanchnic Upper Lumbar Ganglia	17
Prostate & Bladder dis. 8	Lumbar 1, 2, 3 7	Dorsal 12 1 Sacral curve 1	Upper Lumbar Ganglia Last Dorsal and Sacral few	7 8
Uterus & Adnexa 2	Lumbar Lordosis 2	0	Lumbar & Sacral Ganglia	2
Visceral diseases 139 139	Vertebral curve of same symp. seg. as disease site 128	Vertebral curve of adjacent segment 10	Vertebral curve of segments not related to diseased site 1—5	check 138

"Therefore, in fifty cadavers with disease in 139 organs, there was found curve of the vertebrae, belonging to the same sympathetic segments as the diseased organs 128 times, leaving an apparent discrepancy of ten, in which the vertebrae in curve belonged to an adjacent segment to that which should supply the diseased organs with sympathetic filaments. However, the nerve filaments entering the cord or leaving it travel or have traveled up or down the cord for a few segments, accounting for all of the apparent discrepancies. The check amounts to 138, when the one body No. 12, which had a faint curve, with slight pathology only, is added we have the original 139, showing that the figures are fairly accurate.

"The following diseases were found, taken in their order from neck to feet: Larynx, cancer 1, thymus, large and fatty 2, pleurae, adherent 24, effusion 2, lungs, pneumonia 15, tuberculosis 9, edema 7, passive congestion 5, fibrous lung 1, bronchitis 4, enlarged peribronchial lymph node 1, influenza 5, heart, endocarditis 3, dilatation 10, brown degeneration of heart muscle 1, pericarditis 2, aortic aneurysm 1, liver, hypertrophic cirrhosis 4, atrophic cirrhosis 3, fatty cirrhosis 3, cirrhosis 1, congested 1, cloudy swelling 1, gall-stones 5 times, stomach, dilated 4, ulcer 1, tumors 1, hemorrhage 1 or 2, spleen, large 7, atrophic 5, perisplenitis 1, pancreas, degenerated 1, kidneys, large red 8, small red 7, acute parenchymatous 2, cystic 1, cloudy swelling 1, appendicitis 1 or 2, combined with salpingitis, uterus displaced and adherent 1, prostatic hypertrophy 4, atrophy 3, urinary bladder, ribbed 4, cystitis 1, tumors 1, unduly large 1, small 1, groin, wound of excision of cancer or buboe 1, hydrocele 1, osteomyelitis tibia 1. In general, were found the ordinary diseases of adult life.

"The original observations, omitted through lack of space, are now re-examined, as a check system on the tables, for discrepancies. Fifty cadavers exhibited a total of 105 curvatures, two of which showed Pott's disease, two gross scoliosis, leaving 100 minor pathological curves. Of these, 96 showed evidences of disorders (diseases) in some of the structures supplied by that portion of the sympathetic system coming from the vertebral segments in curvature. There were nine curvatures without any evidence of disease in the organs belonging to the same sympathetic segments as the vertebrae in curve. As four of these were gross curves (Pott's disease or gross scoliosis) five minor curves are left, without disease in the organs supplied by the same part of the sympathetic as the vertebrae in curve. Reversing the process of thought, 221 structures other than the spine were found diseased. Of these, 212 were observed to belong to the same sympathetic segment as the vertebrae in curvature. Nine diseased organs belonged to different sympathetic segments from the vertebrae out of line. These figures cannot be expected to exactly coincide with those in the tables, for an organ may receive sympathetic filaments from several spinal segments, and several organs may be supplied with sympathetic filaments from the same spinal segments.

"Another example of direct pressure upon, or infection of, the sympathetic system is found in pleural adhesions. Pleural adhesions were observed twenty-six times in forty-two bodies associated with minor curves in the upper dorsal region in all but two instances; the lungs were diseased in nineteen of the twenty-six, the heart in six. On the other hand, there were seven instances of the lung and fourteen instances of heart disease in which the pleurae were not mentioned. Pleurisy is common clinically without, as well as with, disease of the lung. Pneumonia without pleurisy was demonstrated a few times in the fifty bodies. The pain over pneumonia, as in other organs, is now believed to be in the coverings, or even in the chest wall or abdominal wall, the organs themselves being comparatively insensitive. When the lungs were pulled out of the cadavers, the adhesions were sufficiently strong to pull the intercostal vessels and nerves from their grooves under the ribs; the sympathetic can also be pulled upon in this manner. Pleurisy may be caused by infection, the earliest stage being hyperemia. The irritation of the sympathetic is probably as much caused by infection as by direct pressure; the reflex spasm of the vaso-motors deranging the blood supply of the organs supplied by the sympathetic segment in curve."10

Vertebrae can be adjusted and nerve pressure removed and the subject can have complete recovery in most instances.

These experiments show that there is much to be gained by continuing these experiments with proper controls. This would enable us to utilize 25 splints on the same vertebra on 25 different animals with 20 of the splints subluxating the same vertebral level and the same direction and degree and with 5 splints merely fastened to the vertebra of a control group, without subluxating the vertebra. All 25 cases could be carefully studied and compared. As funds become available, these and many other controls will be instituted and the results will be made available to the chiropractic profession.

Further information on the initial series of experiments and 16 mm movies are available for educational seminars. Please contact the author.

10) Winsor, Sympathetic Segmental Disturbances - II, The Medical Times, pgs. 267-271.

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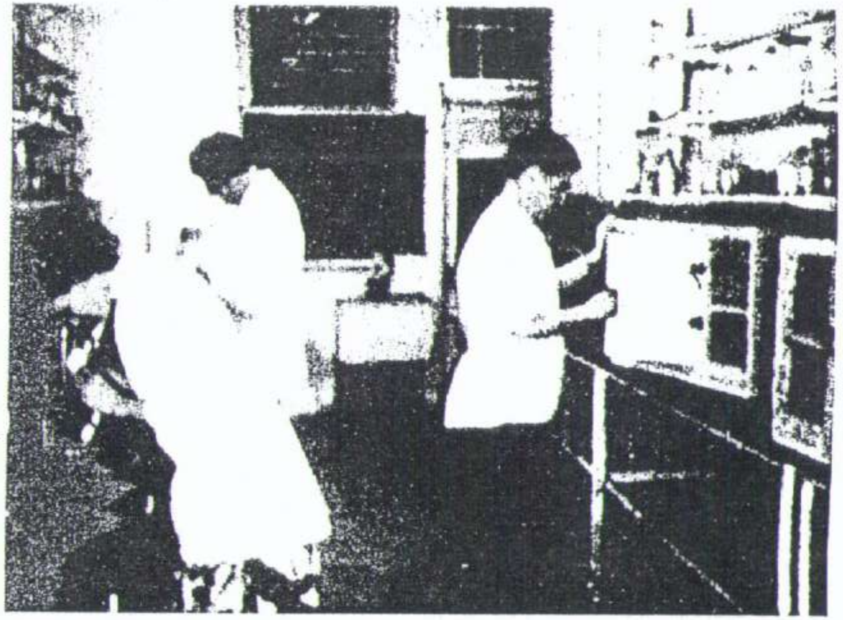

Fig. 7 - Laboratory where animals were conditioned to the presence and handling of humans.

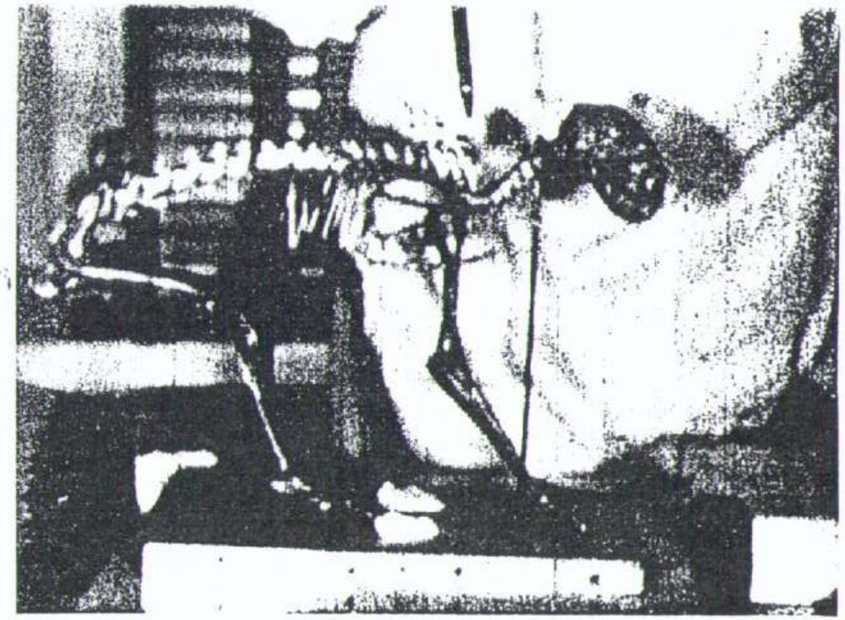

Fig. 8 - Skeleton of cat showing splint in place on spinal column.

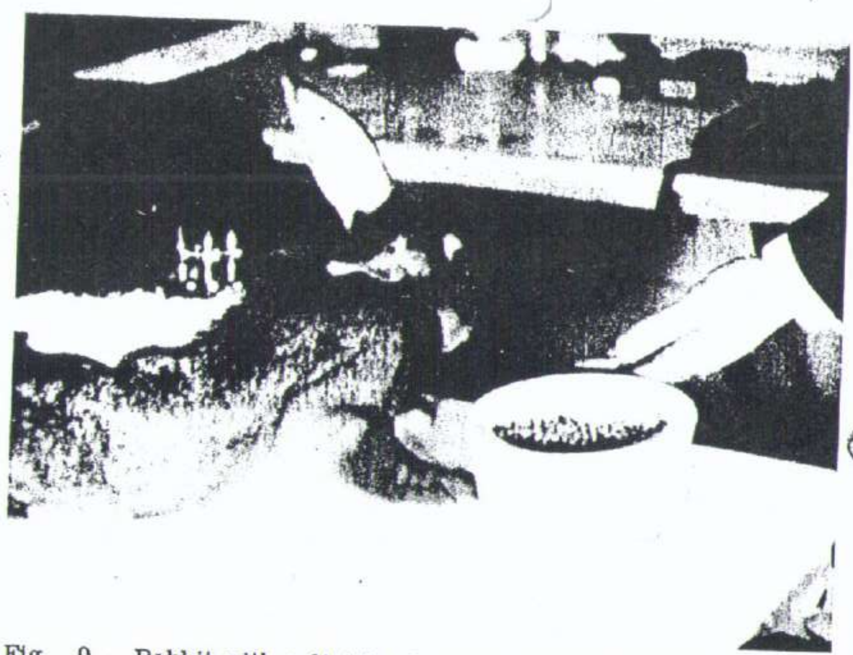

Fig. 9 - Rabbit with splint in place. Rabbit has been completely conditioned to human handling.

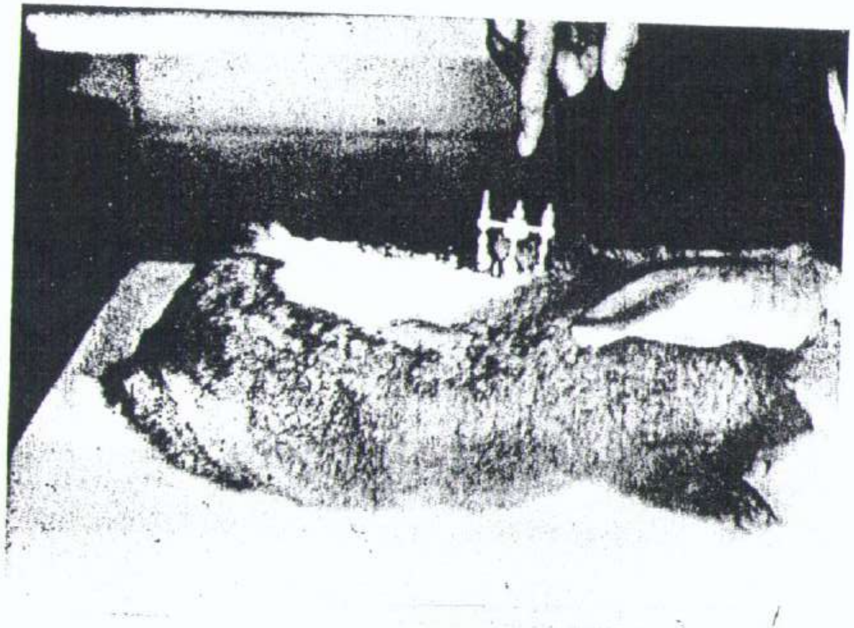

Fig. 10 - Rabbit with splint in place.

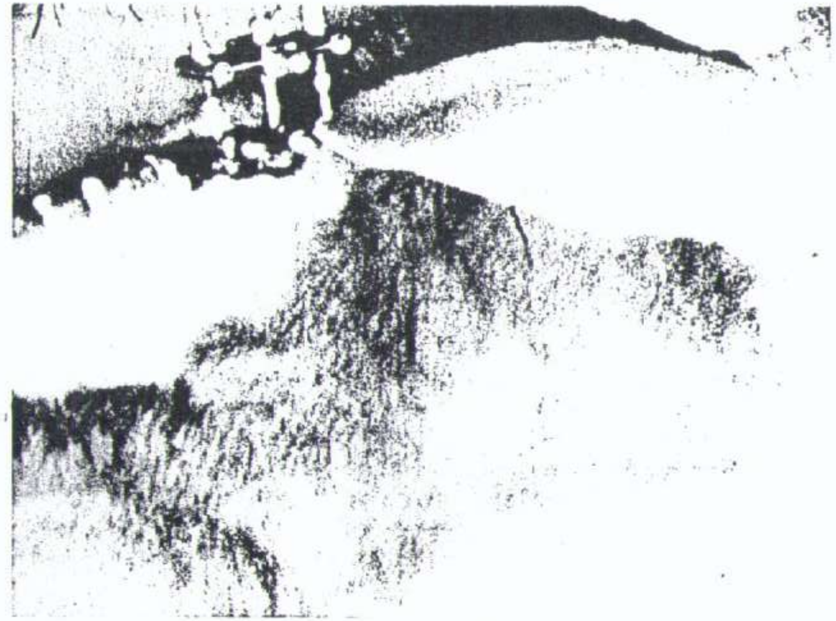

Fig. 11 - Rabbit with splint in place.

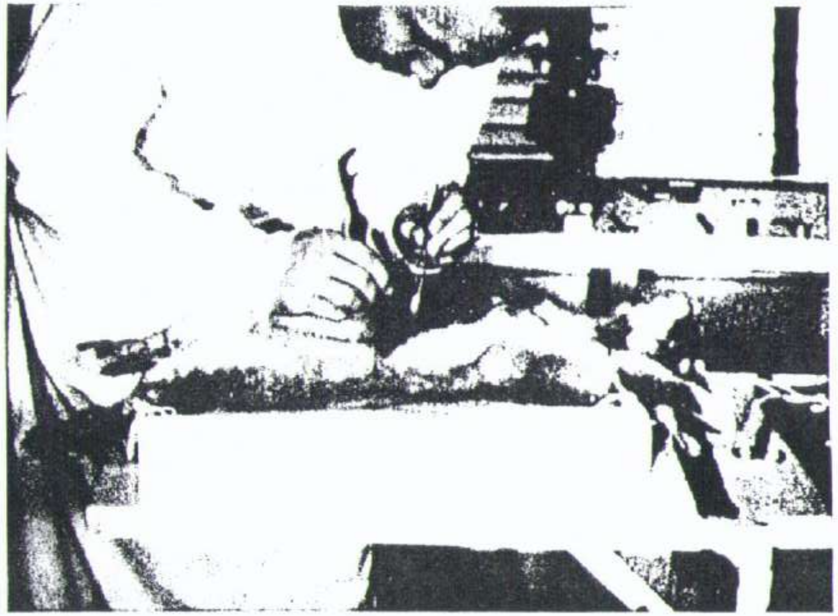

Fig. 12 - Post mortem (Case #2).