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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

TELEPHONE (404) 633-3311

July 3, 1974

John Creech, M.D.
Plant Physician
B. F. Goodrich Chemical Company
Bell's Lane, Rubbertown
Louisville, Kentucky.

Dear Dr. Creech:

Enclosed are copies of 15 pathology reports prepared by Dr. Thomas after reviewing specimens submitted to him. Included in this group are: Parks, The report on is particularly intriguing and I have also enclosed a copy of a letter concerning him from

In addition to all the relevant pathologists, I have also sent individual reports to Drs. Seipel and McCullough , Dr. Will Ward (Parks), Dr. Ciliberti , and Dr. Kerfees and I am also sending a copy of report to his physician. If there is anybody else that you think should receive copies of any of these reports, please let me know and I will forward copies to them.

I am truly sorry for the delay in sending these along to you; I will certainly send you any further reports as soon as I receive them.

Dr. Thomas and Dr. Popper were deeply appreciative of the opportunity to review all of these specimens and of your referring all of the biopsy material to them; we all would sincerely like to thank you once again for allowing us to work with you on this investigation.

Please let me know if I can be of any further help at any time.

Sincerely,

Henry Falk

Henry Falk, M.D.
EIS Officer
Cancer and Birth Defects Division
Center for Disease Control

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Enclosures

P.S. I have also enclosed a copy of my report to the C.D.C. on my part of the study. As you can see from page 13 of that report you would have

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CASE #1

age at diagnosis - 52 y.o.
work duration - 19 years
date of dx. - 4/64

Onset of illness - 8/63 - tiredness, swelling of feet and "bloating of stomach."

adm. #1 - 1/64 - c.c. - RUQ pain, severe
P.E. - abd-RUQ splinting and tenderness
Lab. - Gall Bladder series: non-visualization
O.R. - Exploratory lap. and cholecystectomy
1) Blood and clots on opening, from hemangioma on dome of liver.
2) Thickened gall bladder with multiple adhesions.
Path.: 1) Chronic cholecystitis, minimal
2) Liver bx - focal non-specific hepatitis, slight.
Post-Op. - Wound Dehiscence, slow healing

adm. #2 - 1/64 - c.c. - icterus, fever, wound dehiscence
LFT on adm. - T.B.-4.9 (d-2.2), SGOT-115 A.P.-nl.
2/64 - To O.R. for drainage of subphrenic hematoma (and possible abscess)
3/64 - Needle biopsy of liver - no change from previous - possibly nl.

Course - 1) Continued febrile, with inability to control bleeding through open wound (received 27 units of blood over 2-month span).
2) Increasing lung densities, dyspnea, and pleural fluid.

4/9/64 - Expired.

Autopsy Report - 1) Massive replacement of liver by angiosarcoma with metastases to epicardium, septum of heart, lungs, pleura, serosa of small bowel and mesentery, periadrenal adipose tissue, diaphragm, and in sections of L kidney.
2) Liver - 5,200 grams - all of R lobe replaced by tumor mass, with many small lesions in L lobe. 1,000 cc of trapped fluid over dome.
3) Bloody fluid in pleural cavity and pericardial sac.

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CASE #2

age at diagnosis - 43 y.o.
work duration - 17 years
date of dx. - 8/67

Onset of illness - fall of '66 - tired, lethargic. Also, intermittent "pleurisy" in chest and back.
7/67 - total of "anemia" by physician.

adm. #1 - 8/67 - Complained of "knot" in epigastrium and severe pain adm.
P.E. - Epigastric mass + 4FB spleen
Lab. - CBC - Hg.-10, WBC-7,400, Plat.-140,000 B.M.-nl.
--- Transfer to major hospital - initial impression: R/O Hodgkin's disease

adm. #2 - 8/67 - Lab. - Plat. count - 33,000
LFT - T.B. - 1 (nl 1.0)
A.P. - 31 (nl. 4-17)
SGOT - 65 (nl. 45)
LDH - 180 (nl. 120)
BA enema and lymphangiogram - nl.
Liver scan - large defect in liver, and hypersplenism
O.R. - laparotomy - a) splenectomy
b) found large hemangioma 'n' hematoma - drained
O.R. - Sudden blood loss 3 days later led to return to O.R.
Liver bx. at this time revealed liver ca.
Course - Treated with 5-FU and Cytoxan

adm. #3-6 (10/67-12/67) - for chemo Rx and its complications.
Chemotherapy brought only very transient response, the patient having a downhill course after diagnosis with increasing hepar size, ascites, jaundice, and expired on 1/7/68.

Path. - Autopsy - Angiosarcoma of liver, both lobes, with extension into diaphragm and anterior abdominal wall.

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CASE #3

age at diagnosis - 36 y.o.
work duration - 14 years
date of dx. - 5/70

adm. #1 - 1/70 - onset of illness - passed tarry stools, P.E.-abd-neg., upper G.I.-nl., Imp - bleeding duodenal ulcer. Rx-diet, meds.

adm. #2 - 5/70 - Recurrence of tarry stools. Readmitted to evaluate and correct.
P.E. - Enlarged liver and palpable spleen
Lab. - SMA-12 - T.B. - 1.2 (nl. 1.0) Repeat: T.B. - 0.9
A.P. - 98 (nl. 85) A.P. - 112
LDH - 215 (nl. 200) LDH - 203
SGOT - 58 (nl. 50) SGOT - 68
Upper G. I. -
a) suggestion of mass displacing stomach
R/O - liver, pancreas, retroperitoneum
b) no definite ulcer seen
c) spleen
Esophagram - suggestion of varices
Liver scan - large lesion in L lobe, and extending into R lobe
O.R. - Laparotomy - bx. of liver (with hemorrhage from site, controlled)
Path.- Angiosarcoma
Rx. - a) Radiotherapy-Cobalt - 5/70
b) 5-FU - several courses
Course - Improved x appx. 1 year, with wt. gain, stability of liver function tests, and suggestion of increased uptake on liver scan.

9/71 - Repeat biopsy - showed large areas of irregular fibrosis with islands of atypical endothelial cells.

9/27/71- Expired

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CASE #4

age at diagnosis (cirrhosis) - 41 y.o.
age at diagnosis (angiosarcoma) - 49 y.o.
duration of work (to initial dx.) - 15 years
date of diagnosis (cirrhosis) - 5/65
date of diagnosis (angiosarcoma) - 3/73

adm. #1 - 12/63 - nausea, wt. loss, weakness, paller melena and hematemesis
dx - ulcer Rx - diet and meds

adm. #2 - 5/65 - repeat hematemesis and melena
varices visualized on esophagoscopy
liver bx. - showed mild portal fibrosis, with lymphocytic infiltrates, and scattered liver cell necrosis - low grade process.
O.R. - portal hypertension portacaval shunt
Dx. - toxic hepatitis cirrhosis. Secondary to occupational exposure.
After discharge - Work transfer, & L.F.T.'s returned to normal.

adm. #3 & #4 - 11/67 & 2/68 - for hemorrhoidectomy and inguinal hernia repair.

adm. #5 - 10/70 - presented with weakness, worn-out, low-grade fever, sweats,
P.E. - enlargement of liver and return of abn. L.F.T.'s.
Liver bx. - needle - interpreted as aggressive form of hepatitis, with progression from previously diagnosed toxic hepatitis to cirrhosis.

adm. #6 - 10/70 - cholecystectomy for gallstones.
open liver bx. - "very slight acute and chronic inflammation.

adm. #7 & #8 - 11/70 & 12/70 - increased weakness, wt. loss, sweat, and fever.
Rx with prednisone, but symptoms persisted.

adm. #9 - 5/71 - Cleveland Clinic -
a) arteriogram - "tumor blush"
b) reinterpretation of 1970 bx. - "anaplastic hepatoma," and portal fibrosis

adm. #10-15 (5/71-3/73) - For chemo Rx with 5-FU and oncovin, and for treatment of complications 2° disease and therapy.
Course - slowly downhill with incipient hepatic coma.
8/72 - no change in heparin 1 year leading to doubt about dx. of hepatoma
Lab. - T.B.-1.0, LDH-240, SGOT-nl., A.P.-215
Liver scan - huge, irregular defect in upper post-portion of liver

Expired - 3/3/73 - Dx. - 1) Angiosarcoma
2) Cirrhosis

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CASE #5

age at diagnosis - 58 y.o.
work duration - 27 years
date of dx. - 12/73

adm. #1 - 7/73 - c.c. - poor appetite, weakness, and 25 lb. weight loss in prior 3 mos.
P.E. - hepatosplenomegaly
Lab. - SMA-12 T.B.-1.8 A.P.-350 SGOT-100 (Repeat T.B.-2.4, with d. 1.4)
Liver scan - neg. for neoplasm
Upper G.I., Ba enema, oral cholecystogram - nl.
Needle biopsy of liver - #1 - severe hepatic fibrosis with bile duct proliferation, consistent with post-necrotic cirrhosis.
#2 - 4 days later. Poor specimen. Not interpretable.
Repeat liver scan - hepatosplenomegaly consistent with diffuse disease.
O.R. - Exploratory lap. - no evidence of malignancy - mult. open liver bx.
Path.- Imp. - liver bx. - peripertal inflammation and fibrosis. slight bile stasis
? ascending cholangitis
Discharged home on ampicillin because of latter possibility.

adm. #2 -12/73 - c.c. - Downhill course with increasing weakness, jaundice, abdominal distention, and loss of appetite.
P.E. - Far advanced liver disease - with marked jaundice, ascites, spider angiomata. Abd. - tense, and grossly distended.
Lab. - SMA-12 - T.B. - 35.8 (d.21)
A.P. - 350
SGOT - 95 (68 on repeat)
LDH - 275
Alb - 1
Pro Time - 25.9

12/19/73 - date of expiration.

Autopsy - angiosarcoma, with extension into duodenum.

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CASE #6

age at diagnosis - 45 y.o.
work duration - 12 years
date of dx. - 2/74

Onset of illness - late summer '73 - 1) much more tired in recent months
2) intermittent 'pleurisy' - under R rib cage
3) nl. P.E. in 8/73. SMA-12 - nl. except slight LDH.

12/73 - SMA screen - nl. except LDH - 265
2/73 - SMA screen - nl. except LDH - 305

2/74 - adm. for w/u - P.E. - abd-neg.
Lab. - Hg - 15.3 Plat. - nl.
BSP - 3% - retention - nl.
SMA - 12 - T.B. - 0.5, SGOT - 28, A.P. - 95, LDH - 311
SGPT - 19
LDH - isozymes - IV - lung pattern
T.P. - 7.0 (with G & alb.)
urine, EKG, chest X-ray, lung scan - nl.
Liver scan -
ant. - enlarged liver with slight diminution at lower pole of R lobe
post. - generalized diminution over lower half of R lobe
lat. - neg.
interpretation - suspicious, but not well defined enough to be diagnostic
O.R. - laparotomy -
a) abd - nl. feel
b) ant. surface of liver - nl.
c) nodular, hard, indurated feel at dome of liver, most marked posteriorty. Several biopsies done.
Path. - Angiosarcoma

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CASE #7

age at dx. - 46 y.o.
work duration - 24 years
date of dx. - 12/68

onset of illness - 10/68 - c.c. - weakness and tarry stools
P.E. - Pallor; Abd - neg.

adm. #1 - Hg. 5.6 - mult. transfusions
SMA - 12 - nl. T.B. & L.D.H. SGOT - 75 and A.P. - 310
Upper G.I. - duodenal ulcer
Patient refused surgery. Discharged improved. (Work transfer)

adm. #2 - 11/68 - recurrence
Upper G.I. - suggested lesser curvative ulcer
O.R. - Laparotomy - 1) Vagotomy and Pyloroplasty; 2) liver appeared abnormal: whitish, splotchy appearance to capsule, and firm; 3) spleen - 2-3 x nl.
Lab. - BSP - 229
C.F. - 4 + at 24 hr.
SMA - 12 - T.B. - 1.2 (0.8 - d), SGOT - 114, SGPT - 166, A.P. 350, Alb. - nl.
Varices - Probable an esophogram. Not visible on esophagoscopy
Path.: 1) Liver - portal fibrosis, proliferation of bile ducts, subcapsular fibrosis.
2) Spleen - 560 grams
O.R. - Laparotomy - Repeat - Splenoportogram with increased splanchnic pressure leading to splenectomy & splenorenal shunt.

adm. #3 - 1/69 - recurrence - $\bar{o}$ palpable liver - SMA as above
Upper G.I. - 2/69 - Varices present but smaller

adm. #4 - 5/70 - recurrence - home after improvement
BSP - 8% SMA - 12 - as above
After this admission the SMA - 12 returned to nl.

adm. #5 - 6/72 - c.c. - fever, RUQ pain, and back pain
SMA - 12 - nl. except SGOT - 220 and A.P. 350
Liver scan - nl.
Clinical dx - Ca. of Pancreas. Patient refused surgery.

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CASE #8

age at diagnosis - 28 y.o.
work duration - 5 years
date of dx. - 1/72

9/71 - c.c. - chest pains, and 25 lb. recent wt. loss

adm. #1 - 9/71 - ? hx. of ethanol intake x 6 years
Hepatosplenomegaly
T.B. - 1.9 (d-0.7) and borderline SGOT
ESR - 23, 18
Weakly positive mono test
dx.: 1) ? hepatic disease 2° ethanol intake; 2) R/O Inf. Mono.

adm. #2 -10/71 - Hx. & P.E. - Had gained 7 lb. and developed "butterfly rash" since previous adm.
Lab. - Repeat mono test - neg
Repeat ESR - 10
ANF & LE Prep - neg.
SMA - 12 - ↑T.B. & SGOT -93 (A.P.-nl.)
Liver scan - Nl. except for enlarged spleen
Needle bx. of liver - attempted mult. times. Inadequate specimen.

adm. #3 -12/71 - Hx. - 8 lb. wt. loss, jaundice, debility. Admitted for definitive bx.
P.E. - icteric. 2FB liver & 2FB spleen
Lab. - CBC - nl. Stool Cult - + salminella - Rx: Ampi.
ESR - 44
T.B. - 5.6 (d. - 4.5)
SMA - 12 - T.B. - 4.3, LDH-nl, SGOT - 190, A.P. - 550
serum electrophoresis - neg.
AuAg - neg.
O.R. - Exp. Lap. - spleen - 3 x nl. size
G.B. - nl.
liver - found some soft dot-like disruption of the cortex of the liver, and took bx.
Path.: 1) moderate peripertal fibrosis; 2) chronic active cholangitis

Returned to work, but transferred.

adm. #4 - 8/73 - c.c. - wt. loss, melena, hematemesis.
SMA - 12 - nl. except for T.B. - 1.1
Upper G.I. - equivocal peptic ulcer. dx - healing peptic ulcer

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CASE #9

age at diagnosis - 56 y.o.
work duration - 24 years
date of dx. - 9/73

	C.F. 24 hours	C.F. 48 hours	T.B.
7/17/64	0	0	1.4
3/8/65	2+	2+	1.3
4/12/65	1+	3+	0.8

2/73 - Bilateral hernia repair - Noted to be icteric. (Work transfer)

3/73 - Liver scan: marked splenomegaly with somewhat small liver suggesting cirrhosis.
Gall Bladder study: poorly functioning.

4/7/73 - q 1 mo. liver profiles - improved, then worsened.

adm. #1 - 8/73 - for w/u
SMA - 12: nl. except: T.B. - 2.8
A.P. - 168
Serum electrophoresis - G (1.9) & Alb. (3.4)
Liver-Spleen scan - Nl. size liver. Markedly enlarged spleen (24cm)
Upper G.I. - Probable Varices. Prolonged small bowel transit time. Spleen.
Hepatic vein studies - Suggested nl. venous pattern.
Splenic Angiogram - 1) marked engorgement, dilatation, multiple aneurysms
2) possible occlusion of mid portion of splenic vein. Varices present.

adm. #2 - 9/73 - SMA - 12 - nl. except - T.B. - 2.5
A.P. - 133
O.R. - exploratory L lobe of liver appeared nl. A veil of tortuous veins mixed with adhesions and momentum prevented full view R lobe. These veins could not be mobilized and prevented palpation of possible extrahepatic pertal block suggested on operative venogram. Liver bx. done.
Splenectomy (1,050 gram).
Splenic vein could not be mobilized adequately and anastomosed and splenorenal shunt attempt had to be discontinued.
Path. - Liver - slight in pertal fibrous tissue. Possibly nl.

11/20/73 - SMA - 12 - T.B.-0.7 A.P. 350 LDH - 275 SGOT - 43 T.P.-7 Alb.2.7

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CASE #10

age at diagnosis - 56 y.o.
work duration - 29 years
date of dx. - 9/73

c.c. - Presented in 8/73 with 2-3 wk. history of LLQ abdominal pain.
8/21/73 - Oral cholecystogram - calculi
Ba enema - diverticulosis

adm. #1 - 9/3/73 - Hx. & P.E. - neg. Hepatic
SMA - 12 - T.B. - 1.9
SGOT - 110
LDH - 240
A.P. - nl.
9/4/73 - exploratory laparotomy with cholecystectomy and liver biopsy.
Operative findings - 1) Chronic cholecystitis and cholelithiasis
2) Liver - slightly enlarged, and stippled with small, pinhead-sized pustules scattered throughout.
3) Spleen - not enlarged
4) Palpable diverticuli
Path. Report.: 1) Liver Bx. - Imp. - subacute or chronic hepatitis with focal fibrosis and extensive regeneration.
2) Gall Bladder - Chronic inflammation.
9/12/73 - serum electrophoresis - nl. except albumin (3.3)
" - BSP - 12% retention

10/15/73 - returned to work in less hazardous area
11/6/73 - nl. SMA - 12

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