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A Case Study on Single Drug Therapy in Kamala W.S.R to Jaundice in Neonate

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Abstract: Jaundice in neonate is commonly seen in about 60% of infants. In this case study, a baby who didn't recovered even after phototherapy and 1month of treatment with modern medication, a single herb Bhumyamalaki (Phyllanthus amarus schum) swarasa along with sun light exposure was given. All biomarkers were within normal limits and baby was clinically normal after ayurvedic treatment.
Keywords: Jaundice, Neonatal jaundice, Kamala, Bhumyamalaki, Phyllanthus amarus schum

I. INTRODUCTION

Hyperbilirubinemia is a common and, in most cases, benign problem in neonates. Jaundice is observed during the 1st week of life in approximately 60% of term infants and 80% of preterm infants[1]. Jaundice is defined as the yellowish discolouration of the skin and sclera caused by deposits of bilirubin. High bilirubin levels may be toxic to the developing central nervous system and may cause neurological impairment even in term newborns[2].

In ayurveda, Jaundice is explained in the name of Kamala roga; which is considered to be the disease of Pitta dosha. We find many treatment modalities in the management of Kamala. Shodhana and shamana chikitsa are mentioned for treating jaundice. As shodhana therapy can't be given in neonates, only shamana treatment is suitable by using simple single drug which is most effective. Bhumyamalaki (*Phyllanthus amarus* schum) which is wildely distributed as weed in cultivated and waste lands. It is one such drug which is very much effective in Pittaja vyadhi like jaundice. This case study is about the successful treatment of jaundice neonate treated with single herb – Bhumyamalaki (*Phyllanthus amarus* Schum).

II. BRIEF REVIEW OF DISEASE

Kamala is the disease which is due to vitiation of Pitta dosha. Cause of the disease mentioned in classics is, due to intake of Pittakara ahara vihara in pandu patients, the pitta gets vitiated and inturn it causes vitiation of Twak, Rakta and mamsa and produces Kamala[3].

Exaggerated physiologic jaundice term is used when total serum bilirubin rises high as 17mg/dl.

A. Causes of Jaundice in Neonates

1) *Hemolytic:* Rh incompatibility, ABO incompatability, G6PD deficiency, thalassemias, hereditary sphero-cytosis.
2) *Non-hemolytic:* Prematurity, extravasated blood, inadequate feeding, polycythemia, idiopathic, breast milk jaundice[4].

B. There are Mainly Two Types of Jaundice

1) *Physiological Jaundice:* Represents physiological immaturity of the neonates to handle increased bilirubin production Visible jaundice usually appears between 24-72 hr of age. It does not require any treatment.
2) *Pathological Jaundice:* An appearance of jaundice within 24 hr, TSB(Total Serum Bilirubin) levels above the expected normal range, presence of clinical jaundice beyond 3 weeks and conjugated bilirubin[5].

Clinical features mentioned in ayurvedic classics are, *Haridranetra*-yellowish discolouration of eye, *Haridra twak, nakha, aanana*-yellowish skin, nails & face, *Raktapeeta shakrunmutro*.- faecus , urine become reddish yellow, *Bhekavarna*- icterus, *Hatendriya*-weakness of sensory organs, *daha*-burning sensation, *Avipaka*-indigestion, *sadana*-bodyache, *aruchi*- tastelessness[6].

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III. CASE REPORT

4 days male baby was admitted in one of the multi speciality hospital on 15/11/2020 with c/o yellowish discolouration of eyes and body since 1 day. And found to have increased bilirubin.
Total Bilirubin was 18.6 mg/dl, Direct bilirubin 0.2 mg/dl and diagnosed as Exaggerated Physiological Jaundice. Then baby was admitted for double surface phototherapy.

A. Ante Natal History

Mother took regular ante natal care. No history of any infection or pregnancy induced hypertension.

1) *Birth History:* Full term baby delivered on 11/11/2020 by LSCS. Baby cried immediately after birth.
2) *Immunization History:* BCG, OPV, HepB0.immunized on proper time.

B. Vitals on the Day of Admission

Pulse :- 120 bpm
RR:- 42/ min,
SpO2- 98%
CVS:- S1, S2 Heard
RS:- B/L Clear
Per Abdomen :- Soft.
During stay in hospital, parents noticed swelling over left thigh for which, USG was advised.
USG abdomen findings were- No obvious choledochal cyst.
USG Scrotum revealed

- Lesion seen in left groin (2.6 x 2.1cm.)
- It is in subcutaneous plane.
- Partly cystic & solid with well defined margin (without significant vascularity).
- Testes & epididymis appears normal & seen moving between inguinal canal & scrotum. For this surgeon opinion was taken and diagnosed as lymph node enlargement and advised to wait and watch for 2-3months.

Double surface phototherapy, and orally Ossopan D syrup was given for 3 days.
Investigation done on the day of discharge i.e, on 18/11/2020
Serum parameters were Total Bilirubin- 14.5 mg/dl, Direct Bilirubin- 0.34 mg/dl and Thyroid function test revealed T3- 0.96 , T4- 7.20, TSH- 2.18. as serum bilirubin was still high, baby was haemodynamically stable, afebrile, Pulse- 130/min and SpO2-98%. So baby was discharged from the hospital on 18/11/2020 with advise to continue Syrup Ossopan D 2.5ml bd orally for 1month and to take Sun bath every day in early morning..
Treatment was followed for 1 month and even after 1 month of treatment, baby did not recover. Symptoms still persisted. So, Liver function test was done on 26/12/2020,
Findings were as follows;
Total cholesterol- 151.00 mg/dl
Total proteins- 5.00g/dl
Albumin- 3.60g/dl
Globulin- 1.40g/dl
Albumin: Globulin ratio- 2.57:1
Alkaline phosphatase (serum)- 235.00 U/L
Total Bilirubin- 10.20 mg/dl
Direct Bilirubin- 0.60 mg/dl
Indirect Bilirubin- 9.60 mg/dl.
Alanine Aminotransferase ALT (S.G.P.T)- 16.00 U/L
Gamma GT (G- glutamyl-p-nitroanilide-)- 97.00
Thyroid Stimulating hormone- 4.72uIU/ML
Then they approached for Ayurvedic treatment. Based on clinical features *Peeta netrata*-yellowish discolouration of eyes, *Haridratwak nakhaanana*- yellowish discolouration of skin (body) and based on serum parameters, it was diagnosed as Kamala (Jaundice).

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IV. TREATMENT ADVISED

Bhoomyamalaki (*Phyllanthus amarus* Schum) Swarasa 4drops internally and sun bath i.e, baby should be exposed to sunlight early in the morning. Duration of treatment advised for 1month.

V. RESULT

After 1 month of Ayurvedic treatment, baby recovered much better and became active when compared to earlier. Symptoms like yellowish discolouration of Sclera and skin vanished. Liver function was done, all the increased values which were more before Ayurvedic treatment became almost normal after taken Ayurveda treatment.

Table no. I Showing the difference in biomarker values, before treatment of modern medicine, after treatment of modern medicine, then after ayurvedic treatment.

Serum parameters	Before treatment 26/12/2020	After modern treatment. 18/11/2020	After ayurvedic treatment. 10/01/2021
Total Bilirubin	10.20mg/dl	14.5 mg/dl	3.70 mg/dl
Direct Bilirubin	0.60 mg/dl	0.34 mg/dl	0.10 mg/dl
Indirect Bilirubin	9.60 mg/dl	-----	3.60 mg/dl

Other parameters Before and After Ayurvedic treatment

Serum parameters	Before treatment 26/12/2020	After Ayurvedic treatment. 10/01/2021
Aspartate Aminotransferase AST	28.00 U/L	32.00 U/L
Alanine Aminotransferase ALT	16.00 U/L	17.00 U/L
GAMMA G.T (G.glutamyl-p-nitroanilide)	**97.00 U/L**	**66.00 U/L**

VI. DISCUSSION

Neonatal jaundice or physiological Jaundice is self limiting: if Bilirubin level do not come to normal, then it will be considered as pathological one. Treatment protocol followed in modern medical science are;-

(i). **Phototherapy** which remains the mainstay of treating hyperbilirubinemia in neonates. It acts by converting insoluble bilirubin into soluble isomers that can be excreted in urine and feces and (ii). **Double volume exchange transfusion (DVET)** is performed if the TSB(Total Serum Bilirubin) levels reach to age specific cut-off the low for exchange transfusion or the infant shows signs of bilirubin encephalopathy irrespective of TSB levels[7].

Even after 1 month of modern treatment protocol, baby did not recover so, when parents of baby approached for ayurvedic treatment, based on ayurvedic principles of treatment on kamala, Charaka advises to give shodhana with Tikta rasa pradhana dravyas in kamala[8].

In context of Arsha chikitsa, caharakacharya given the importance of use of Tikta rasa prayoga as *"Agnisandeepanartham cha raktasangrahanaaya cha, doshaanam pachanartham cha param tiktairupacharet* ||"[9]. To get agnideepana- to improve agni, and to make rakta sangrahi i.e, correction in rakta dhatu and for dosha pachana, one should use Tikta rasayukta dravyas. Which is very much essential in treatment of jaundice hence the single drug Bhumyamalaki(*Phyllanthus amarus* schum) which is predominant of Tikta rasa; Kashaya rasa, Madhura rasa as anurasa, Sheeta Veerya and it is indicated in pittaja rogas like vata rakta, Trishna, pipasa, kasa etc diseases[10] was selected in this case.

In this case baby had inguinal lymph enlargement which may not be related to jaundice was also subsided after this treatment may be it may be self limiting as per surgeons opinion or may be due to use of bhumyamalaki. Further work can be done over it.

Though AST and ALT were within normal limits, the G.glutamyl-p-nitroanilide was abnormally raised before treatment which got reduced after use of Bhumyamalaki (*Phyllanthus amarus* schum). Bio markers like Total Bilirubin, Direct and Indirect Bilirubin were became normal and clinical symptoms were reduced.

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VII. CONCLUSION

In this case, Total Bilirubin was 18.6 mg/dl so diagnosed as Exaggerated Physiological Jaundice initiately and even after treatment with photo therapy also baby did not recover. The jaundice persisted even after 1 month suggests being pathological jaundice. Kamala is pitta dosha pradhanya vyadhi. Probably because of Tikta rasa and sheeta veerya of Bhumyamalaki (*Phyllanthus amarus* schum). might have pacified Pitta dosha which is main dosha involved in pathogenesis of kamala. Overall a single drug therapy with Bhumyamalaki along with sun light therapy has shown effective in this case.

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IMAGES OF DISCHARGE SUMMARY



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Fax: 26630987

DISCHARGE SUMMARY

NAME:MAST.B/O PRIYANKA PAHUJA	IP NO :2021/01012
AGE :4D	DATE OF ADMISSION :15/11/2020 10:46 PM
SEX :MALE	DATE OF DISCHARGE:18/11/2020 03:26 PM
CONSULTANT :DR: VIVEKANANDA KUSTAGI—PEDIATRICIAN	

DIAGNOSIS: EXAGGERATED PHYSIOLOGICAL JAUNDICE.

Mast. B/o Priyanka Pahuja, 4days male baby was admitted with c/o yellowish discolouration of eyes and body since 1day.
Found to have increased bilirubin. TB- 18.6, DB- 0.2.
Now admitted for double surface phototherapy.

Birth history: Baby delivered on 11/11/2020 by LSCS.

O/E: Conscious and oriented.
Pulse—140bpm, RR—42/min, SpO2—98%, CVS: S1S2+, RS—B/L clear.
ABD: Soft.

Baby was started on **double surface phototherapy** and treated with Syp Ossopan D.

Regular estimations of GRBS done.

Investigations done on 18/11/2020.
TB: 14.5, DB—0.34.
T3: 0.96, T4—7.20, TSH—2.18.

Double surface phototherapy continued.

Repeat Bilirubin done on 18/11/2020:
TB: 13.29.
DB: 0.28.

During stay parents noticed swelling over left thigh.
Advised USG thigh.

USG abdomen scan:
- No obvious choledochal cyst.

USG SCROTUM:
- Lesion seen in left grain (2.6 x 2.1cm).
- It is in subcutaneous plane.

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- Partly cystic & solid with well-defined margin (without significant vascularity).
- Testes & epididymis appears normal & seen moving between inguinal canal & scrotum.

Adviced: Pediatric surgeon opinion.

Pediatric surgeon opinion was sought: History noted.
? Lymphnode inguinal.
Wait & watch.
Follow up after 2-3 months with USG.

Condition on discharge: Hemodynamically stable, Afebrile, Pulse—130/min, SpO2—98%.

Baby was better and discharged with the following advice.

1. Syp Ossopan D 2.5ml 1—0—1 x 1 month.
2. Sun bath.

OAE checkup on follow up.

REVIEW WITH DR. VIVEKANANDA KUSTAGI AFTER 2 DAYS AT 09.30AM WITH PRIOR APPOINTMENT.

Note: In case of any queries and emergency, please report back to casualty or call 42527555.

Please review with the concerned doctors by taking appointment either to visit hospital or preferably by downloading RAJSHEKAR HOSPITAL APP for Tele video consultation.

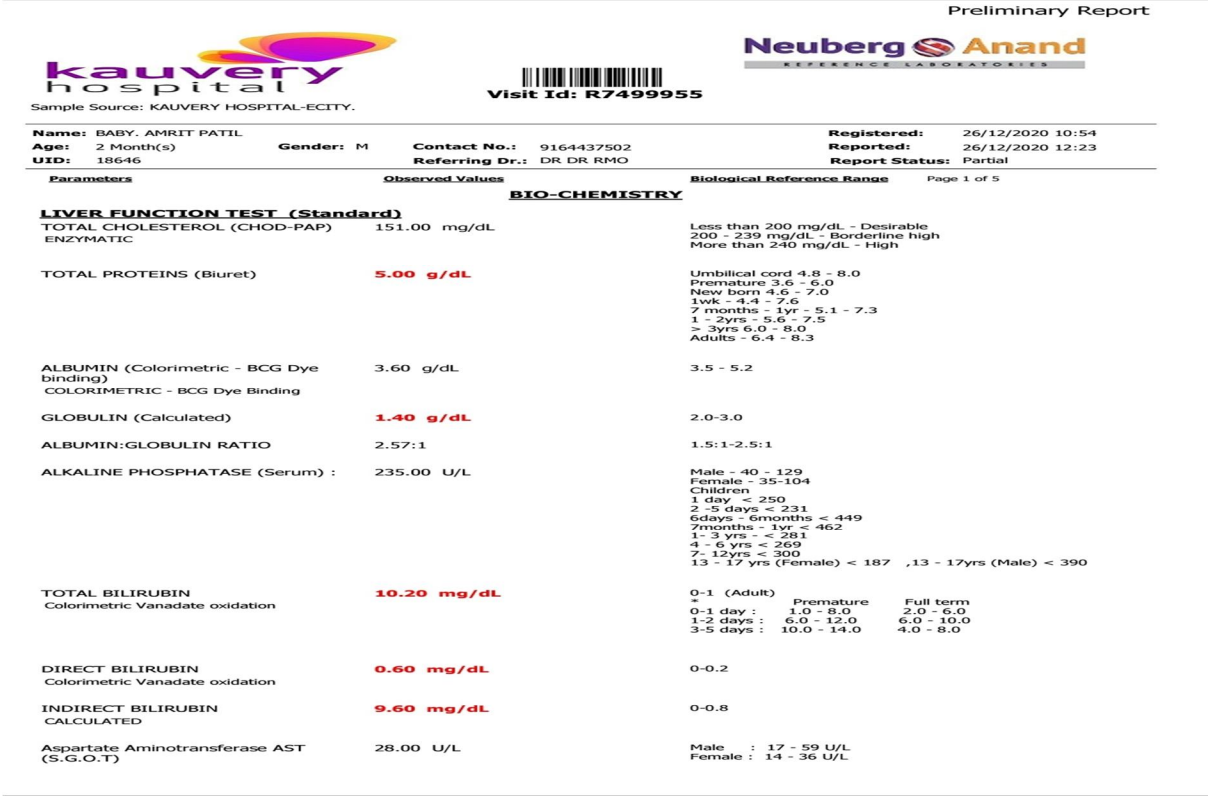
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INTENSIVE CARE UNIT WITH VENTILATORS DIALYSIS

IMAGES OF REPORTS AFTER PHOTOTHERAPY & MODERN MEDICATION



Preliminary Report

kauvery hospital
Sample Source: KAUVERY HOSPITAL-ECITY.

Visit Id: R7499955

Neuberg Anand
REFERENCE LABORATORIES

Name:	BABY. AMRIT PATIL			**Registered:**	26/12/2020 10:54
Age:	2 Month(s)	**Gender:** M	**Contact No.:** 9164437502	**Reported:**	26/12/2020 12:23
UID:	18646		**Referring Dr.:** DR DR RMO	**Report Status:**	Partial

Page 1 of 5

BIO-CHEMISTRY

Parameters	Observed Values	Biological Reference Range
LIVER FUNCTION TEST (Standard)		
TOTAL CHOLESTEROL (CHOD-PAP) ENZYMATIC	151.00 mg/dL	Less than 200 mg/dL - Desirable 200 - 239 mg/dL - Borderline high More than 240 mg/dL - High
TOTAL PROTEINS (Biuret)	**5.00 g/dL**	Umbilical cord 4.8 - 8.0 Premature 3.6 - 6.0 New born 4.6 - 7.0 1wk - 4.4 - 7.6 7 months - 1yr - 5.1 - 7.3 1 - 2yrs - 5.6 - 7.5 > 3yrs 6.0 - 8.0 Adults - 6.4 - 8.3
ALBUMIN (Colorimetric - BCG Dye binding) COLORIMETRIC - BCG Dye Binding	3.60 g/dL	3.5 - 5.2
GLOBULIN (Calculated)	**1.40 g/dL**	2.0-3.0
ALBUMIN:GLOBULIN RATIO	2.57:1	1.5:1-2.5:1
ALKALINE PHOSPHATASE (Serum) :	235.00 U/L	Male - 40 - 129 Female - 35-104 Children 1 day < 250 2 -5 days < 231 6days - 6months < 449 7months - 1yr < 462 1- 3 yrs - < 281 4 - 6 yrs < 269 7- 12yrs < 300 13 - 17 yrs (Female) < 187 ,13 - 17yrs (Male) < 390
TOTAL BILIRUBIN Colorimetric Vanadate oxidation	**10.20 mg/dL**	0-1 (Adult) * Premature Full term 0-1 day : 1.0 - 8.0 2.0 - 6.0 1-2 days : 6.0 - 12.0 6.0 - 10.0 3-5 days : 10.0 - 14.0 4.0 - 8.0
DIRECT BILIRUBIN Colorimetric Vanadate oxidation	**0.60 mg/dL**	0-0.2
INDIRECT BILIRUBIN CALCULATED	**9.60 mg/dL**	0-0.8
Aspartate Aminotransferase AST (S.G.O.T)	28.00 U/L	Male : 17 - 59 U/L Female : 14 - 36 U/L

Preliminary Report

kauvery hospital

Neuberg Anand REFERENCE LABORATORIES

Visit Id: R7499955

Sample Source: KAUVERY HOSPITAL-ECITY.

Name:	BABY. AMRIT PATIL			**Registered:**	26/12/2020 10:5
Age:	2 Month(s)	**Gender:** M	**Contact No.:** 9164437502	**Reported:**	26/12/2020 12:2
UID:	18646		**Referring Dr.:** DR DR RMO	**Report Status:**	Partial

1

Parameters	Observed Values	Biological Reference Range

Page 2 of 5

BIO-CHEMISTRY

LIVER FUNCTION TEST (Standard)

Alanine Aminotransferase ALT (S.G.P.T)	16.00 U/L	Female : 09 - 52 U/L Male : 21 - 72 U/L
GAMMA G.T (G-glutamyl-p-nitroanilide -)	97.00 U/L	Males : 15 - 73 Females: 12 -43
THYROID STIMULATING HORMONE, Serum ELFA	4.72 uIU/mL	1 - 7 days: 1.0 - 39.0 1 - 4 weeks: 1.7 - 9.1 1 - 12 months: 0.8 - 8.2 1 - 5 yrs : 0.25 - 5 6 - 10yrs : 0.25 - 5.5 11 - 15yrs: 0.25 - 5.5 16 - 20yrs : 0.25 - 5.5 21 - 80yrs: 0.25 - 5.5 First trimesters : 0.6 - 3.5 Second trimesters : 0.4 - 4.5 Third trimesters : 0.7 - 4.0

Bilirubin test repeated and confirmed. Kindly correlate clinically.

------ End Of BIO-CHEMISTRY Report ------

HAEMATOLOGY

COMPLETE BLOOD COUNT (Automated blood cell count)

HAEMOGLOBIN PERCENTAGE SLS METHOD	15.7 g/dl	Birth :18.0 +/-4.0, Day 3:18.0+/-3.0, 1 month:14.0+/-2.5, 2 months 11.2+/- 1.8, 3 months - 6 years 12.6 +/- 1.5, 6 -12 years:13.5+/-2.0,. Adults :Male:13.5 -18; Female:11.5-16
PACKED CELL VOLUME PARTICLE CELL COUNTER	44.6 %	Adults : M:39-54% F:34-48,
TOTAL WBC COUNT	8780 /Cmm	Adults:4,000-11,000, Birth: 18000+/-8000, Day 3: 15000+/- 8000, 1 month: 12000+/-7000, 2 months:10000+/-5000, 3-6 months:12000+/-6000, 1 year: 11000+/-5000, 2-6 years: 10000+/-5000, 6-12 years9000+/- 4000

IMAGES OF REPORTS AFTER AYURVEDIC TREATMENT

TEST REPORT

kauvery hospital

Visit Id: R7553245

ANAND DIAGNOSTIC LABORATORY
A Neuberg ASSOCIATE

Sample Source: KAUVERY HOSPITAL-ECITY.

Name:	BABY AMRIT PATIL			**Registered:**	10/01/2021 13:48
Age:	2 Month(s)	**Gender:** M	**Contact No.:** 9164437502	**Reported:**	10/01/2021 14:32
UHID:	11501		**Referring Dr.:** DR DR PRABHAKARA REDDY	**Report Status:**	Final

BIO-CHEMISTRY

Test Name	Test Result	Biological Reference Range	Sample
LIVER FUNCTION TEST (Standard)			
TOTAL CHOLESTEROL (CHOD-PAP) ENZYMATIC	157.00 mg/dL	Less than 200 mg/dL - Desirable 200 - 239 mg/dL - Borderline high More than 240 mg/dL - High mg/dL	
TOTAL PROTEINS (Biuret)	5.00 g/dL	Umbilical cord 4.8 - 8.0 Premature 3.6 - 6.0 New born 4.6 - 7.0 1wk - 4.4 - 7.6 7 months - 1yr - 5.1 - 7.3 1 - 2yrs - 5.6 - 7.5 > 3yrs 6.0 - 8.0 Adults - 6.4 - 8.3 g/dL	
ALBUMIN (Colorimetric - BCG Dye binding) COLORIMETRIC - BCG Dye Binding	3.60 g/dL	3.5 - 5.2 g/dL	
GLOBULIN (Calculated)	1.40 g/dL	2.0-3.0 g/dL	
ALBUMIN:GLOBULIN RATIO	2.57:1	1.5:1-2.5:1	
ALKALINE PHOSPHATASE (Serum) :	237.00 U/L	Male - 40 - 129 Female - 35-104 Children 1 day < 250 2 -5 days < 231 6days - 6months < 449 7months - 1yr < 462 1- 3 yrs - < 281 4 - 6 yrs < 269 7- 12yrs < 300 13 - 17 yrs (Female) < 187 ,13 - 17yrs (Male) < 390 U/L	
TOTAL BILIRUBIN Colorimetric Vanadate oxidation	3.70 mg/dL	0-1 (Adult) * Premature Full term 0-1 day : 1.0 - 8.0 2.0 - 6.0 1-2 days : 6.0 - 12.0 6.0 - 10.0 3-5 days : 10.0 - 14.0 4.0 - 8.0 mg/dL	
DIRECT BILIRUBIN Colorimetric Vanadate oxidation	0.10 mg/dL	0-0.2 mg/dL	

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TEST REPORT

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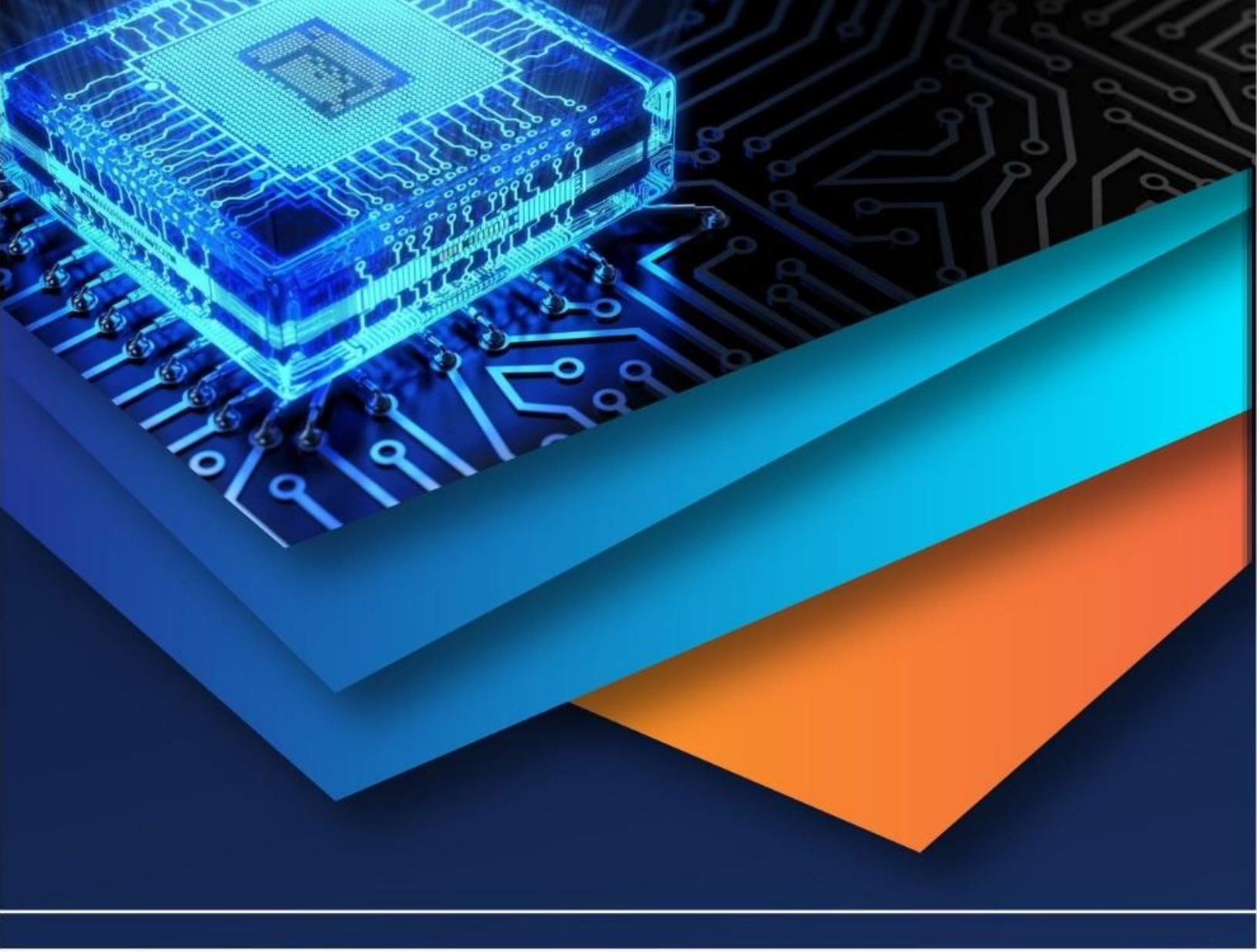
Sample Source: KAUVERY HOSPITAL-ECITY.

Name:	**BABY AMRIT PATIL**			**Registered:**	10/01/2021 13:48
Age:	2 Month(s)	**Gender:** M	**Contact No.:** 9164437502	**Reported:**	10/01/2021 14:32
UHID:	11501		**Referring Dr.:** DR DR PRABHAKARA REDDY	**Report Status:**	Final

BIO-CHEMISTRY

Test Name	Test Result	Biological Reference Range	Sample
INDIRECT BILIRUBIN	3.60 mg/dL	0-0.8 mg/dL	
CALCULATED			

Aspartate Aminotransferase AST 32.00 U/L Male : 17 - 59 U/L



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